# The OIL WEEKLY

FOR THE DRILLING, PRODUCING, PIPE LINE INDUSTRY

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*Standard of the Industry*

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January 28, 1946

VOLUME 120, NUMBER 9

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**OIL MEN** have learned to depend on Unaflo—the cement with the delayed, the postponed, the *retarded* set. They use it reguarly to assure the success of squeeze jobs. For it does not stiffen or congeal prematurely. After the squeeze, excess Unaflo slurry—still pumpable—is reversed out with ease.

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**Atlas Portland Cement—Type I**
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**PETROLEUM REFINER and The REFINERY CATALOG for the refining-natural gasoline industry**

## LOOKING AHEAD
*. . . with the Editor*

ARGENTINA felt the same effects and faced the same problems during the war as other oil producing nations of the world. Lack of equipment curtailed drilling activity and caused a decline in production. However, with a domestic production of about 2/3 local consumption, citizens of the South American country were far better off than many others.

A picture of Argentina's oil industry will be presented next week in the Monthly International Feature Section of THE OIL WEEKLY by J. Elmer Thomas, Fort Worth geologist.

☆

ANSWERING an industry need, equipment has been developed which flame hardens tool joints in the field. This equipment eliminates delay in drilling operations through removal of joints or transportation of pipe, and operates during drilling operations or between wells without inconveniencing or causing shut down of the rig at any time.

The flame-hardening unit carries everything required with it and in addition to operating during drilling operations will handle the work equally as well where nothing is on location except a rack and the pipe.

The operation of hardening tool joints in the field by flame will be described in the next issue of THE OIL WEEKLY by R. F. Arnoldy, with the Deep Well Pipe Survey Company and Houston Heat Treating Company.


# The OIL WEEKLY

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SIMPLICITY IS THE FIRST REQUISITE OF SAFETY

# Avoid unnecessary hazards by keeping parts to a minimum

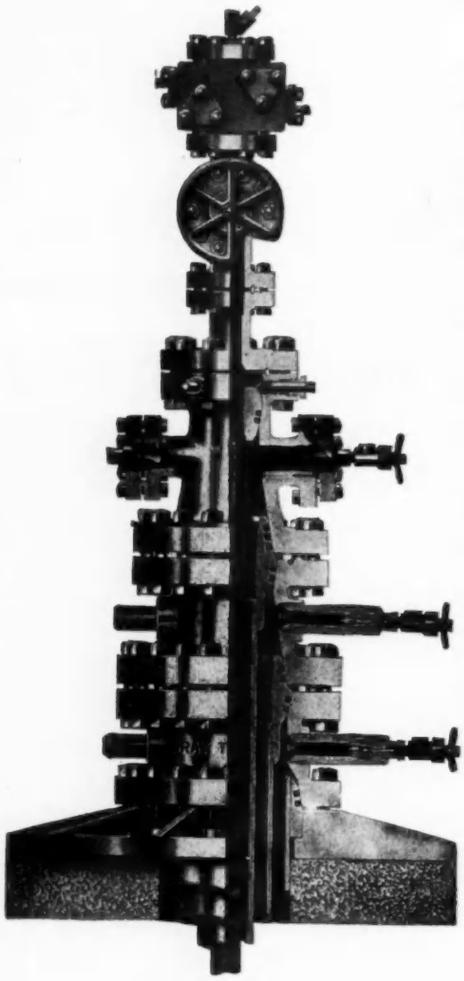

FIGURE 1A

*Complete Well Head Assembly equipped with Composite Manifold, Valve Removal, Installation and Removal.*

Simplicity means the fewest number of the highest quality parts. Parts used beyond the minimum, parts left in the structure beyond their period of usefulness, are a menace and create unnecessary hazards. Many parts are manufactured of materials which are sufficiently long-lived and entirely suitable for use during their period of usefulness, but do not have the permanency which makes them safe for the flowing life of a well.

The blowout preventer, an essential and most valuable piece of equipment, is packed with rubber or other highly flowable material to facilitate ease in forming a seal. Such material is relatively weak when compared with steel, and disintegrates quickly. It is unsuitable where long life is essential and, therefore, should be used during the performance of operations where its use is needed, and then removed. The same applies to the master valve. The large pressure subject areas of the bonnet often cause gaskets to disintegrate when subjected to long periods of use.

Gray Systems of Well Control provide complete control during and between all operations, plus the ability to use master valves, blowout preventers, strippers, and other available control equipment throughout their entire period of usefulness, after which provision is made for the disassembling and removal of these expensive parts, with control, to the position of accessories for use on other wells.

***The whole is greater than any of its parts. Avoid unnecessary hazards by keeping parts in the permanent structure to a minimum.***

THE WHOLE IS GREATER THAN ANY OF ITS PARTS

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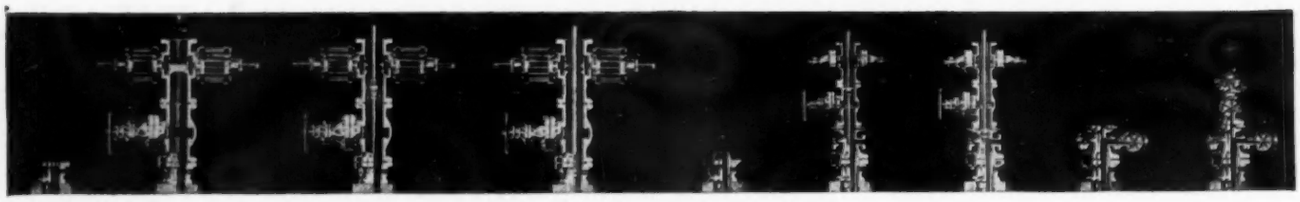


Casing Head Attached | Drilling | Running Casing | Casing Landed | Drilling Control Equipment Removed | Drilling-in and Running Tubing | Tubing Landed | Control Equipment Removed | Manifold Attached

# The Outlook

Relations between President Truman and Congress are becoming increasingly strained. The President has put himself squarely on record as to the legislation he wants, and the Senate already is tied up on a snarl over FEPC, a maneuver that, whether planned by labor or not, has successfully gagged discussion of current strikes by members of the upper branch.

* * * *

President Truman's declaration that this is not the time for further tax reductions is not sitting well with Congress which has eyes on next November's elections, and it is expected that some sort of tax bill will be pressed, even though it may be nothing more than a token of congressional sympathy for the individual taxpayer.

* * * *

Cancel the sale of a lot of automobiles, radios, washing machines and other durable goods. Striking workers are eating up their hopes of future luxuries and have lost so much in wages that it will make a dent in national income. With 1.6 million workers out, the wages lost run in excess of $7.5 million a day.

* * * *

Edwin Pauley's nomination to be Undersecretary of Navy may meet with opposition in the Senate sufficiently strong to induce President Truman to withdraw it. The fight will be based on the charge that the nomination is a political pay-off for Pauley's services as treasurer of the Democratic National Committee.

* * * *

The federal government will continue to be a heavy purchaser of oil products. The Army and Navy will have a combined strength of 2 million men, and present plans are to keep several large naval fleets in operational status, with others in reserve and used for training purposes. Stress will be laid upon airpower, and the fleets will be built around carriers.

* * * *

Industrial research may soon rate the billion-dollar class. The amount spent on research quadrupled between 1920 and 1929, tripled again by 1940, and is expected to at least double the prewar total in 1946. Company research programs approximate a half billion dollars, facilities of universities and foundations are expanding as are also research projects of the government.

* * * *

At least seven wildcat tests are expected to result from the exploration program which is to be carried out on Naval Petroleum Reserve 4 in Alaska. Preliminary work toward resuming operations next summer has already been started.

* * * *

The Wage Stabilization Board, set up by an act of Congress, may soon announce that plans to cut wages must be first submitted to it for approval.

* * * *

Strikes and slowdowns are hurting the Mid-Continent refinery markets. Gasoline storage is increasing daily and relief is not in sight until labor troubles are ended and normal buying and use of motor fuels and other by-products is resumed.

* * * *

Economics up to 25 percent in operation are talked for a gas turbine engine designed for ocean-going vessels, said to be nearing completion in England.

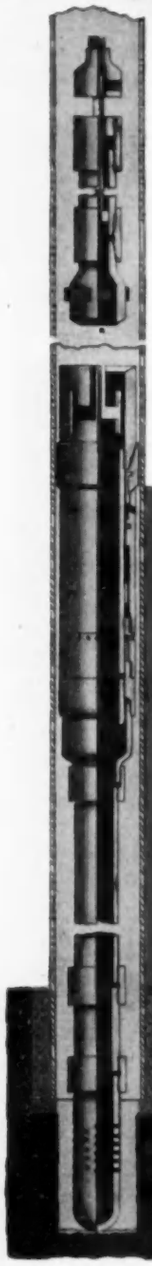
* * * *

Bell Telephone Company of Pennsylvania will experiment with telephones in moving vehicles, which will be connected with the regular telephone system. Telephone numbers of the mobile units in vehicles will be published in the telephone book if the experiment is successful, and vehicle-to-house service is adopted as part of the regular service.

# Replace Old Style Expensive Methods

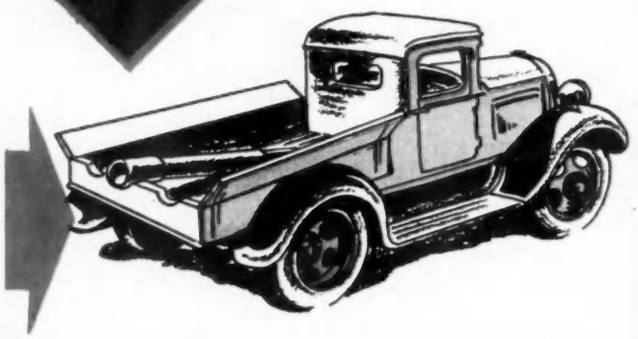
W. C. NORRIS QUALITY

# TUBING Eliminator



## SAVES TUBING COSTS

## CUTS MAINTENANCE



**An operator in Kansas, reports a saving of $16,275.00 on fifteen wells through use of NORRIS TUBING ELIMINATORS. Average depth of wells 3,300 feet. This same company reports further savings of $40.00 per well, each time it was necessary to pull the well. On deeper wells, saving is proportionately greater.**

**Similar savings are reported by many major and independent oil companies after rigid tests made under varying field conditions. Reports from producers who are using NORRIS Tubing Eliminators, indicate they are being accepted as Standard Equipment.**

**When a NORRIS Tubing Eliminator is installed, you have only a rod job to service the well – NO wet string of tubing to pull. Well casing remains full of fluid at all times and when pump is serviced and put on beam it will immediately start fluid to tanks.**

**GUARANTEED** – **Behind each NORRIS Tubing Eliminator stands the NORRIS Label of Quality, known and accepted throughout the oil world as the symbol of finest material and workmanship. NORRIS standards assure that the best quality will be present in each Tubing Eliminator bearing the NORRIS Label. The company guarantees Quality Manufacturing–both as to materials and workmanship.**

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Manufactured Under Patents of W. Fred Cox

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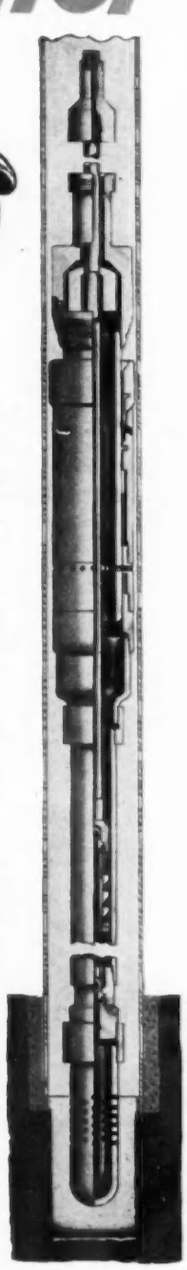
- REPAIRS MADE MORE QUICKLY.
- PUMPING FRICTION OF RODS IN TUBING ELIMINATED.
- LONGER UNINTERRUPTED OPERATION. Reduced polished rod load reduces strain and fatigue on surface and subsurface equipment, attaining more constant operation.
- SAVES PULLING JOBS IN BAD PARAFFINE WELLS.
- LIGHT IN WEIGHT – EASY TO TRANSPORT.
- REDUCES OPERATING COSTS.
- SAFE AND EASY TO INSTALL.
- MORE FLEXIBLE OPERATION.



JAY TOOL TYPE, illustrated in set position with seating nipples to use in connection with insert type pump.

THE NORRIS TUBING ELIMINATOR CAN BE INSTALLED AT HIGHER FLUID LEVELS WITH USE OF ANCHOR.

**For complete information about this revolutionary forward step in oil production –**
**SEND FOR BULLETIN NO. 34**



CONVENTIONAL TYPE, illustrated in running position with common working barrel assembly.

EXPERIENCE BUILDING OIL TOOLS SINCE 1882

# W.C. NORRIS MANUFACTURER, INC.

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# The Changing Panorama

## Rosy Russian Oil Recovery Claims

A NEW YORK *Times* dispatch last week, telling of Russian seizure of Hungarian oil fields at Lispe, cites the Soviet explanation that "American development technique is 25 years behind the times compared with the practices in Russia where 100 percent recovery of oil reserves is common."

Standard Oil Company (New Jersey) which, incidentally, owns much of the development seized by the Red army, says that by American methods 80 percent of the oil in the Lispe field might be recovered "with care, but that great waste would result from the Russian methods." (See page 31.)

There you have two statements. Which is correct?

Great things happen beyond verboten borders. Mystery of the unknown ever has been a magnifying glass. Ordinary varmints grow into fire-breathing monsters and run-of-mine technical developments too often assume proportions that would rock the scientific world—if they proved true.

One hundred percent recovery of oil reserves, what with the many and variable factors that obtain in every well and in every field, perhaps never will be attained. Such recovery is the dream of every production man and engineer, not to mention company executives and stockholders. American engineering has made notable gains. Eighty percent is far ahead of the 15-year-ago average. And doubtless the figure will be upped because millions of dollars for research and as many man-hours are being spent to seek more effective methods. Russia may make some worthwhile contributions, but betting strictly on past performance, we'd say the United States will lead—and by several lengths—at any given time within the next decade or two in the matter of petroleum technical development.

So you can take your choice. Offhand, it looks like the final sentence in last week's Associated Press story about the seizure in Hungary carries the payoff: "The Russian action was interpreted as disclosing an intention to exploit the field to the utmost without regard to the long-range usefulness of the field, in the expectation that eventually the Russians will be obliged to withdraw their forces from the country."

**Editorial Index to 1945 Issues Available Upon Request**

**Due to the paper shortage, THE OIL WEEKLY again is deviating from its long-standing previous custom of incorporating its Annual Editorial Index in one of its regular issues mailed to all subscribers. The complete editorial index covering all issues of THE OIL WEEKLY published during 1945, bound separately, will be sent without charge to each subscriber requesting a copy.**

**Address Circulation Department, Box 2608, Houston 1, Texas.**

## Drilling Costs Up, Contract Rates Down

DESPITE the fact that actual drilling costs have shown some increase during the past few months, there are indications that drilling contract rates are in process of being reduced. This is being caused by the eagerness of some contractors to get jobs, by the entry of some inexperienced men into the field during the war, and in some instances probably by plain mistakes in estimating.

Some contractors have told THE OIL WEEKLY within the past week that their labor costs have advanced around 5 percent above war prices. When the "double-time day" was knocked out, driller and roughneck and rates were advanced but contractors who thought this would eliminate overtime have been fooled and further increases have resulted. At the same time price cutting probably will force drilling rates downward, some believe.

In the Gulf Coast area there was considerable difference of opinion among contractors last week as to whether or not crews had improved since the war, and as to whether or not moving and rigging-up time had been reduced. During the war, it was pointed out, moving and rigging-up time increased by a large percent. Some contractors thought that the time spent in moving and rigging up had shown some improvement, some thought that it had shown little or none. The same difference of opinion prevailed as to the quality of crews available. Pre-war drillers and roughnecks who went into the armed forces are coming back—and being welcomed—but not in large numbers looked for, it was said.

## What Is the Value Of a Contract?

ELSEWHERE in THE OIL WEEKLY (page 27) appears a story dealing with the strike of steel workers which gives promise of seriously affecting drilling operations in the United States.

It should be noted that the men on strike in Houston plants were called off in sympathy with a strike enforced outside of the state. It is highly interesting, and significant, that in some of the plants affected, and in fact, in the case of the U. S. Steel itself, workers struck in direct violation of a non-strike pledge which was a part of an already negotiated contract. Which brings up the questions:

*What kind of an agency is it which will solemnly pledge itself not to strike and then violate that pledge without the slightest compunction?*

*How can any company feel assured that it has settled any problem with a union when that union's word is notoriously poor?*

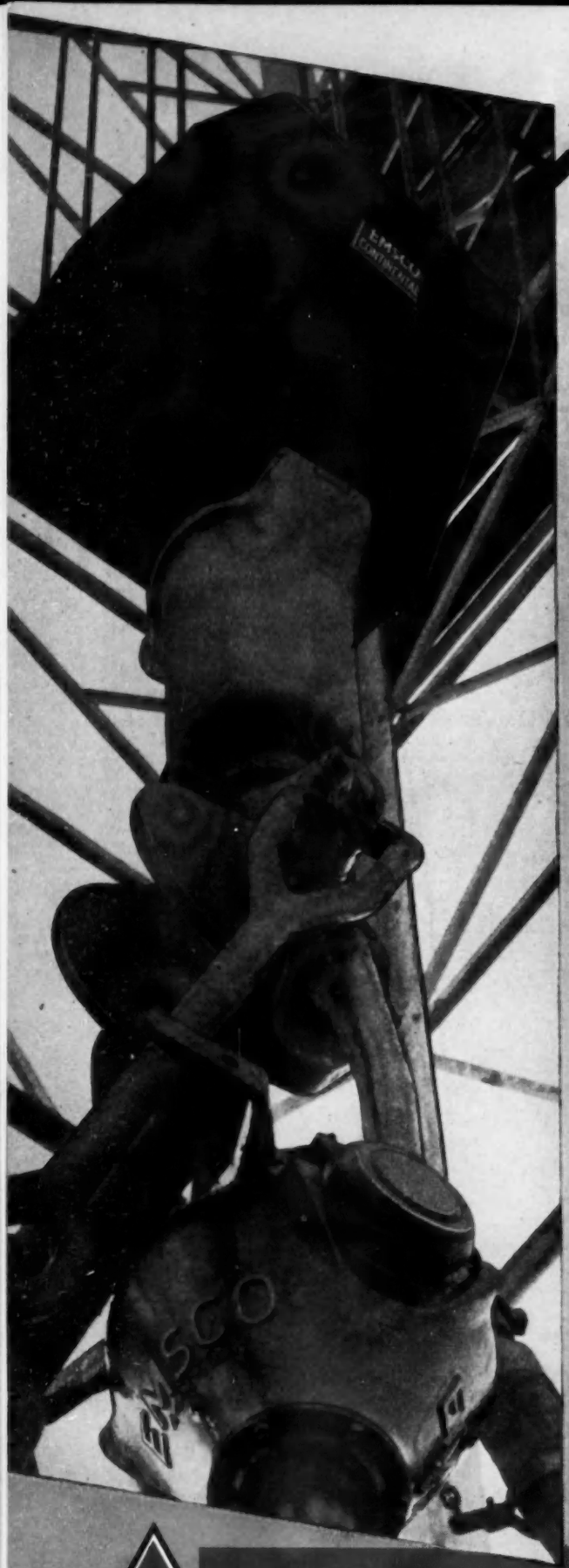
If the manufacturing companies had violated their part of the contract—their agreement not to lock-out the union members—the CIO unions would have been yelling to high heaven about the companies having broken their word. It is a pretty sorry kind of leadership which insists on a treatment which it in turn is not willing to give.

We believe that before the present confusion of strikes and labor troubles is settled, both parties to a wage or labor contract will have to be made equally responsible. In other words there must be some assurance that the union's word will be kept as well as the word of the employing company. Probably legislation will be provided to make a contract enforcible.

As it now stands, a contract with the CIO, as it has always been, is only a contract for trouble. One of the companies in Houston involved in the strike has pointed with pride to its long record of harmony between employer and employes . . . it might well have added that its first evidences of trouble came after signing its CIO contract.

*"Listening" to gases by means of the acoustic gas analyzer is a new way to record and control gas purity. In the commercial field it will be used in chemical and petroleum processing plants as a process gas line recorder.*

—General Electric *News Digest.*



# Rugged...

## BUT EASY TO HANDLE

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REG. U. S. PAT. OFF.

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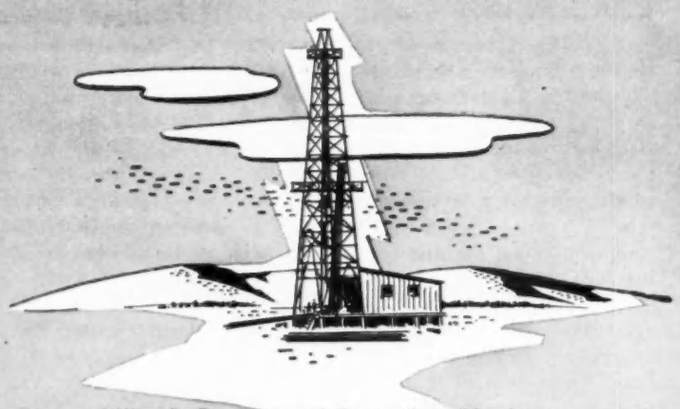

▲ Emsco NB-48 Crown and Traveling Blocks are exceptionally rugged—*easy to reeve, handle and transport.*

▲ Built for the deepest drilling—*long, trouble-free and economical operation.*

▲ Traveling Blocks are available with 5 or 4 sheaves—the Crown Blocks, 6 or 5 sheaves.

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# CONTINENTAL

SERVING THE OIL AND GAS INDUSTRIES

# The Week's News

STANDING firmly behind his previously announced legislative program, President Truman last week called upon Congress for a balanced budget, maintenance of present tax levels, continuation of price control and the Second War Powers act.

**President, Congress, Labor, etc.**—The President's request for a permanent Fair Employment Practices Committee had embroiled the Senate in a hot filibuster and his formula for settling labor dispues by fact-finding, watered down by a House committee, was about to become the basis for an attempt to pass stiff anti-strike legislation. Most of the remainder of his program has been bogged down in congressional committees for months. Story below.

**Budget and Tax Matters**—A balanced budget, which will be achieved only if Congress restrains its extra-budget appropriations and maintains the present tax structure, was predicated upon an anticipated expenditure of $36 billion in the fiscal year 1947 and revenues of $31 billion. But there were indications of an impending drive for tax cuts, both in and out of Congress, and the U. S. Chamber of Commerce made known tax changes which it will ask when the Ways and Means Committee hold hearing on the subject. Page 30.

**Items for Oil Activities**—Proposed appropriations for oil activities of the several agencies, as presented in the budget, will be generally higher than for the current year, and possibly somewhat higher than will be granted by Congress, it was indicated by the House Appropriations Committee's shaving of funds for the FPC and other independent offices covered in the first appropriation bill of the session to be reported. Page 30.

**Oil Price Increase Effort**—Efforts for a general increase in crude prices were suspended awaiting announcement of an important decision by the Office of Economic Stabilization on the stripper-well subsidy. The House Small Business Committee, which has worked for a price increase, was watching the situation, apparently expecting that the subsidy will be ordered terminated, in which event Chairman Wright Patman of Texas plans to launch an immediate investigation. Page 32.

**California Tidelands Fight**—Answer of the state of California to the Department of Justice suit to assert federal title to the tidelands was brought to Washington at the weekend. Page 29.

**Big Inch Disposal**—New regulations regarding disposal of the Big Inch pipe lines are announced by SPA. Page 28.

**Strike Affects Equipment**—Drilling operations will be slowed down by any prolonged work stoppage at steel mills. Story below.

**FPC Gas Hearing**—Texas is prepared to present its natural gas case when the FPC opens a hearing in Houston January 28. Page 31.

**Distillates Given Increase**—OPA at long last permitted an increase in the ceiling prices of distillates, thus affording considerable relief in the East. It was a PAW victory. Page 29.

**Russian Oil Grab**—Resentment felt over grab by Russian army of Lispe field properties in Hungary. Page 31.

## Serious Effect on Drilling Operations If Steel Strike Continues for Long

A prolonged work stoppage at steel mills and oil field equipment plants will begin to slow drilling operations in 30 days and will seriously hamper operations within 60 days, according to major and independent oil operators and manufacturers of oil field equipment contacted by THE OIL WEEKLY.

The two largest manufacturers of rock bits—Hughes Tool Company and Reed Roller Bit Company—are affected by strikes called by their CIO bargaining agencies, and unless there is early settlement rotary drilling will be slowed down as these two plants manufacture between 80 and 85 percent of all rock bits.

The Reed plant was completely shut down January 21, and while the Hughes plant is operating part time, with about 2000 of 6000 on the job (members of an Independent Union at Hughes plant have not struck though many of them have not returned to work) the production has been seriously curtailed.

Hughes officials estimate that they have about 60 days supply of rock bits on hand and are still turning them out in reduced quantities at their plant. Reed officials say that while they are not moving any products from their plant, there is about a month to a month and a half supply of Reed rock bits, un-used, out in the oil fields.

"It is our intention to keep our strategically-located field stocks replenished to the best of our ability and our entire field organization will continue to take care of the drilling wells throughout the United States as long as possible," Hughes officials said.

"It was only by the closest control over the methods of distribution of our stocks that we were able during the war-time emergency to service drilling rigs with sufficient rock bits to keep them running. More recently, through our expansion program, we have gotten our production and stocks into shape to give much better service. However, if the delivery of extra bits were at this time permitted, it would quickly deplete our stocks and cause many unnecessary shutdowns and further confusion for several months before we could again get them in shape."

### Pipe Inventories

Inventories of pipe at supply companies are negligible. The supply companies have been unable to build up stock pipes since V-J Day with most of the pipe shipments going directly to the buyer. Pipe in transit from the steel mills to supply companies will not alter the situation.

Drill pipe is not so critical but casing and tubing is especially short. Supply companies say there has been very little movement of drill pipe in recent weeks, indicating ample supply. Demand for sucker rods also has eased.

Many oil companies have been building up pipe stocks for some time in anticipation of a steel strike. Those companies with normal stocks probably can continue their drilling programs for at least 30 days but after that they will have to readjust their drilling programs. A prolonged steel strike will halt inside drilling, oil men say.

The situation, if continued any length of time, may call for cooperation within the industry in pooling tubular goods, rock bits, and other equipment.

Construction of pipe lines probably will be halted after pipe on hand has been laid. Construction contractors say there are no stock piles of big-inch pipe.

Nine other manufacturers of oil field equipment in Houston also are affected by the strike.

California plants, also are affected, with some plants in the Los Angeles area being shut down. However, early reports show that the Los Angeles area has not been hit as hard as Houston.

According to Reed officials, the company has a contract with the CIO union, dated August 30, 1945, and which carries a no-strike clause. The contract also carries a three-day termination or cancellation clause which was not adhered to.

In a message to CIO unions in Houston, Howard H. Hughes, pointed with pride to the 35-year record of labor relationship of Hughes Tool Company which operated from December, 1918, until June, 1944, without a single strike and without any serious labor-management disputes.

"This performance was achieved purely because Hughes Tool Company has

always voluntarily led this section of the country in higher wages and better working conditions," he said.

Noah Dietrich, executive vice president of Hughes, said that between May, 1941, and January 1946, Hughes has given blanket wage raises of 20½ cents per hour to all hourly employes. This included a 5 cent per hour raise in May, 1941, 10 cents in September, 1941, and 5½ cents in July, 1942.

He said Bureau of Labor Statistics on cost of living shows that there has been an increase since 1941 of 23 percent which is less than Hughes' wage increases over that same period. He said Hughes' offer of an "across the board" increase of 12½ cents per hour and refused by the union would, therefore, raise the percentage of Hughes' increases to almost 36 percent over 1941 standards. Steelworkers at Hughes were offered an immediate interim raise of 15-cents hourly last Thursday but indications were the union would reject the offer and hold out for the 18½-cent increase.

Dietrich also pointed out that Hughes has not increased the price of their product because of price ceilings, and therefore has had to absorb additional labor costs, including actual losses caused by alarmingly decreased worker productivity, without a proportionate relief in total sales income.

"In addition to being unable to raise the price of our product, the company will be forced to absorb any raise in steel costs," he said.

Hughes Tool is not a steel producer, but merely a fabricator, and therefore the company contends there is a complete dissimilarity between it and the basic steel producers.

**Fairless Suggests Conference**

Meantime, Benjamin F. Fairless, president, United States Steep Corporation, has offered a suggestion that "the President immediately call a conference in Washington of experienced executives from representative companies which are now directly involved in strikes" to advise "on what kind of a wage increase the economy of this country can endure without incurring the danger of inflationary spiral with a constant race between mounting wages and mounting prices."

Washington reports indicate a strong effort by the House to write anti-strike legislation into a bill providing for application of the fact-finding procedure to settle labor controversies.

The continuing spread of strikes in important industries despite all efforts of the Administration to quiet the situation lest Congress show its resentment in concrete form has added considerably to the strength of a coalition bloc which has expressed its determination to impose some legislative controls upon union leaders.

Anti-labor legislation members in the House are admitting that only settlement of some of the existing strikes will enable them to defeat efforts to put a halter on the unions. There was little likelihood, however, that their hopes would be realized.

# Policy Relating to Disposition of Big Inch Lines Is Revised by SPA

Policy covering the disposition of the government-owned pipe lines in accord with the report submitted to Congress January 4 was fixed by the Surplus Property Administration last week through amendment of its regulations on government-owned industrial real property.

Under the new regulation effective January 25, the lines will be made available for purchase or lease by any interested parties, but with a provision that all transfers of surplus transportation property shall be subject to the approval of any regulatory agency federal or state having jurisdiction of such transfers by reason of the type of property involved which will make any disposition of pipe lines for gas-transmission purposes subject to approval by the Federal Power Commission.

**Petroleum Service First**

Under the policy expressed in the report to Congress and implemented by the new regulations, first preference will be given to continuing the Big Inch and Little Big Inch lines in petroleum service either by sale or by lease. If it develops that the lines cannot thus be disposed of, it was indicated, congressional approval would be sought for their operation in common-carrier service by the government and only as a last resort will their disposition for conversion into gas carriers be considered.

Because of their size, value and importance to the national security, the Big Inch lines present a major problem and the regulations are directed principally to the four smaller government-owned lines only one of which exceeded $5 million in cost for which the SPA said in its report there is reasonable prospect of finding some economic use in their present locations.

Disposals of properties costing the government more than $500,000 will be negotiated subject to the approval of the administrator and proposed disposals of property costing $1 million or more must be submitted to the Attorney General for approval as not in violation of the anti-trust statutes.

## *Navy Group Negotiations With Refiners Continue*

The Navy "task force" sent out from Washington to try to expedite refinery strike settlements was still in the Texas Gulf Coast district last week, with only one settlement effected.

Shell Oil Company announced January 23, that an 18-percent wage increase with other adjustments had been decided upon between the company and the Oil Workers, International Union, Local 637,CIO, at Houston. The Shell settlement followed the same trend as those announced last week by Maritime Oil Company and the Crown Central Petroleum Corporation, of Houston. Take-over date for the Shell plant was set as January 26.

In addition to the 18 percent wage increase and shift differentials of 4 and 6 cents for the second and third shifts, all wage adjustments and reclassifications of workers recommended by a WLB panel hearing in July were accepted by the union.

Negotiations were still in progress between the union and The Texas Company, Gulf Oil Corporation, Magnolia Petroleum Company, and Pan American Production Company.

## *Kansas Gas Expansion Is Authorized by FPC*

The FPC has authorized Northern Natural Gas Company to undertake a $1,400,000 program of facilities expansion which will increase delivery capacity of its pipe line north of Clifton, Kansas from 260 to 270 million cubic feet of gas daily.

The company proposed to build approximately 20 miles of 20-inch loop line in Iowa at a cost of $469,000, ten miles of 24-inch loop line in Kansas extending a loop from the Mullinville compressor station, at a cost of $291,000; 7 miles of 24-inch loop near the Bushton compressor station at a cost of $213,000, and approximately 13½ miles of 24-inch line from the Beatrice compressor station to cost $434,000.

## *Ratable Taking of Gas May Get Test in Texas*

Proration of gas under provisions of the common purchaser act will be discussed at a hearing before the Texas Railroad Commission scheduled for February 1, at Houston. Involved will be the Bethany and Carthage Fields in Panola County, where 100 gas wells are without connections.

The hearing was called when an operator complained that he could not sell his gas unless he signed a 10-year contract and the company explained it offered 3c without a contract but would pay 4c if the long agreement was signed.

The commission cannot consider the price paid for gas, however, it does have the authority to prevent waste. This might be done through the proration of gas and the requirement that equal withdrawals be made from all wells in the field.

So far the commission has not attempted to enforce a gas proration program in any field, although several are in effect as the result of agreements between the commission, the producers and the pipe line companies. The Panola case may prove to be the test.

# Eastern Fuel Oil Situation Eased As OPA Ups Prices on Distillates

Hope for improvement of the East Coast fuel oil plight soared January 24 when OPA allowed, effective that date, another three-tenths of a cent ceiling increase in District 1 on distillate oils. The OPA order levels off the previous price boosts on both kerosine and distillate throughout Districts 1, 2 and 3, effecting a full one-half cent raise on the two products over ceilings as of last December 18. The order is temporary to April 30.

The latest increase in District 1 is in addition to the December 19 boost of two-tenths of a cent per gallon distillate, and the order includes diesel and gas-enrichment oils excluded from the prior price rise, and applies to inter-district and export shipments.

Industry sources estimate that the price adjustment will result in an increase distillate yield of at least 2 percent for the Atlantic seaboard and will enable certain companies to pull through the season where the whole supply situation is still touch-and-go.

The January 24 ceiling increases were allowed after the direct plea for such boosts by Petroleum Administrator Ickes and Deputy Administrator Davies and despite the opposition of certain high OPA officials. The conflict between PAW and OPA has been sharp for several weeks, and the current OPA action is regarded as a PAW victory.

In its recommendation for an increase, PAW pointed out that to meet estimated first quarter requirements it will be necessary to adjust refinery yields to lower the yield of gasoline from 46.7 to 43.5 percent and that of residual from 22 to 21.9 percent while raising the yields of kerosine from 6.9 to 7.7 percent and distillate from 16.3 to 17.7 percent.

While the change in kerosine yield may appear small, it was explained it actually will make a difference of approximately 120 million gallons in first-quarter output.

PAW declared that changes in refinery yields were not economically possible without adjustment of prices, and warned that "to await the depressing of gasoline prices until the differentials between the price of gasoline and fuel oils is reduced to a point where yields of fuel oils are increased at the expense of gasoline is not the answer."

Gasoline consumption currently is lower than prewar, both in total volume and in relation to the consumption of lower value fuel oils, it was stated, while refinery operating costs, as well as delivered costs of crude in many cases, have increased. Any substantial or widespread decline in gasoline prices, such as is already beginning to occur, would necessitate even great price increases for kerosine and distillate to avoid refinery shut-downs.

PAW disclosed that the military authorities have reported great difficulty in covering their requirements, particularly since the December increase gave a ceiling price for District 1 delivery one-half cent higher than for shipments to overseas theaters. The military have been unable to obtain any kerosine whatever in District 3 for shipment to overseas theaters since the increase.

## South Dakota Test Has Oil and Gas Showings

South Dakota may enter the list of oil producing states if tests at the Hollingsworth 1, CSE NW 23-8s-2e, wildcat near Edgemont, prove successful. Good oil and gas shows have been encountered in the second and third Leo sand zones and casing was being set at approximately 2300 feet. The wildcat is in Fall River County.

C. J. Stafford, consulting geologist of Lusk, Wyo., worked out the structure on which H. L. Hollingsworth has a 3000-acre lease. The test was started last October with the following formation tops (feet) reported: Dakota-Lakota sands 236; Morrison sand 530; Sundance sand 790; Spearfish Redbeds 1195; Minnekahta lime 1590; Opeche formation 1632; and the Converse sand zone (top of the Pennsylvanian) from 1710 to 1840 with a small oil show reported between 1774 and 1785. The Red Marker was topped at 2165 feet and the First Leo sand zone carrying some oil and water at 2195-2223; the second Leo sand zone, from 2295 to 2330, carried both oil and gas. Oil was reported in sandy lime from 2355 to 2388 feet. The Third Leo sand was cut at 2396 feet with oil showings reported in the sand from 2430 to 2450 and 2455 to 2484, total depth.

## Sohio Elects

E. F. Morrill

R. C. Sauer

**Richard C. Sauer has been elected vice president of Sohio Petroleum Company, and Edward F. Morrill has been named vice president of Sohio Pipe Line Company, subsidiaries of Standard Oil Company (Ohio). Sauer now holds the position of manager of crude oil and refined products distribution and will continue in that capacity. Morrill will continue as assistant manager of transportation operations.**

## Integrated Study Being Made of Patent Situation

Investigations of patents by six Senate committees have been coordinated to insure comprehensive coverage of the subject without overlapping or duplication of activity, and in effect, taking up where the Temporary National Economic Committee left off, according to Dr. Dewey Anderson, executive secretary of the Senate Small Business Committee.

The coordination has been accomplished unofficially, with the staffs of the several committees following specific lines of inquiry to fit an overall pattern so that when hearings are completed the reports of each committee can be integrated into a single program that can serve as the basis for future legislation and new governmental administrative policies.

The studies also tie into legislation pending for establishment of a bureau of scientific research in the Department of Commerce. The Senate Commerce Committee, which held hearings last month, is preparing a report on this measure which is designed to supplement the Science Foundation proposed in the Magnuson-Kilgore bills and is aimed at the encouragement of inventors and the development of patents.

## California On Location For Tidelands Battles

The State of California will go to record-breaking length in opposing the government's suit to exert title over the tidelands, with an 800-page reply to the Department of Justice's brief which it will file in the Supreme Court today, the deadline fixed by the court.

California Attorney General Robert W. Kenny will be in Washington for the purpose. Court attaches said that if the brief was not of record length, it was so close as to make no difference.

Kenny also is lining up withnesses who will testify before the Senate Judiciary committee when it opens hearings February 5 on the bill under which the federal government would relinquish all claim to title of the underwater lands, and will have representatives from 30 states ready to go before the committee in support of the measure.

## Late January Production Increased by Texas Body

The Texas Railroad Commission last week increased the allowable for sweet crude fields in the state by 54,771 barrels daily for the remainder of January. The program was carried through by readjustment of shutdown days, allowing the fields affected to produce for more days in January than were permitted in the original order.

Thus these fields will produce during the latter part of January at the higher rates provided in the February proration order.

# Items Relating to Petroleum Shown In Budget Message Sent to Congress

Wartime cost of controlling the nation's oil industry through the Petroleum Administration for War was in excess of $16 million, it was disclosed January 21 in the budget submitted to Congress by President Truman.

The cost of operating the Office of Price Administration up to last June 30 exceeded $470 million and the expense of the Office for Emergency Management, including the War Production Board, War Shipping Administration, Office of Defense Transportation, etc., was close to $6 billion.

The budget gave no definite figures on proposed expenditures for the war agencies still operating or for the War or Navy departments, estimates for which will be submitted separately next spring, but estimated that an appropriation of $166,100,000 would be required for the war agencies, the 1947 expenditures of which were estimated at $1,059,514,000. The balance of the money will come from appropriations already available.

A considerable expansion of the work of the Petroleum Conservation Division of the Interior Department was indicated by an increase in its budget from $185,512 for the current fiscal year to $247,000 for 1947.

The fund for the General Land Office will be increased from $8,164,554 to $9,211,700, with most of the additional money required to meet the new government pay scale. The appropriation for surveying the public lands would be upped from $450,000 to $750,000.

The Geological Survey is slated for $312,500 for investigation of Alaskan mineral resources against $157,500 for the current year, and will get $2,463,500 for geologic surveys and chemical and chemical researches relative thereto, against $1,188,300. For examination and classification of lands with respect to mineral character and water resources, the Survey is to get $350,000, against $214,200 this year, and for enforcement of the mineral leasing act $690,000 against $475,500.

A number of increases are contemplated in Bureau of Mines projects, with the budget calling for $596,000, against $320,000 this year, for the testing of fuels belonging to or for the use of the United States. Seven million dollars, the same as for this year, is allocated for the synthetic liquid fuels investigation.

For oil and gas investigations, the bureau is to get $837,000 against $579,000, of which $161,472 is earmarked for studies of the primary extraction of crude oil and natural gas, against $157,810 this year; $314,588 for secondary recovery and development of oil-impregnated surface and near-surface deposits, against $111,880; $7,716 for transportation and storage of crude and natural gas, against $7,550; $125,622 for chemistry and refining of petroleum, against $122,840; $75,752 for thermodynamics of hydrocarbons, against $49,730; and $151,850 for operation of the petroleum experiment station at Bartlesville, Okla., against $119,380.

Recommended for investigations of the economics of mineral industries is $1,190,000 against $515,000, of which $63,170 would be for the petroleum economics division, against $61,410.

For the work on helium utilization and research, the bureau would get $107,000, against $78,400 this year.

The budget also carried a fund of $3,370,000 for the Federal Power Commission, against $2,322,000 this year, the additional fund reflecting the higher pay rates, the resumption of certain of the commission's statutory duties suspended or curtailed during the war, and the necessity for more regulatory work as a result of financial and construction activity by natural gas companies and electric utilities.

## *Porter Succeeds Hunter As Head of Mid-Continent*

F. M. Porter of the Fain-Porter Drilling Company, Oklahoma City, was elected president of Mid-Continent Oil and Gas Association at the 28th annual meeting of the association held in Tulsa. Porter, the sixth president of the association, succeeds the late J. C. Hunter of Abilene, Texas.

F. M. Porter

Jake L. Hamon of Cox and Hamon, Dallas, was elected first vice president, replacing Porter. H. E. Zoller, The Derby Oil Company, Wichita, was elected vice president for Kansas, succeeding E. B. Shawver of Wichita, who declined re-election, and A. H. Weyland, Arkansas-Louisiana Gas Company, Shreveport, La., was elected vice president for Louisiana-Arkansas, succeeding D. W. Harris who moved his residence from Shreveport to Chicago.

All other officers of the association were re-elected as follows: E. F. Bullard, Stanolind Oil and Gas Company, Tulsa, vice president for Oklahoma; George C. Gibbons, Texas Division, Mid-Continent Oil and Gas Association, vice president for Texas; C. L. Morgan, Dixie Geological Service, Jackson, Miss., vice president for Mississippi-Alabama; Van S. Welch of Flynn, Welch and Yates, Artesia, vice president for New Mexico; Clarel B. Mapes, Tulsa, general secretary-treasurer.

Directors reviewed affairs and activities of the organization during 1945 and the programs and policies for the ensuing year. Among other actions the directors adopted a memorial resolution dedicated to the late Judge Hunter.

## *Truman Says No Further Tax Cut; Program Asked*

Extension of the Second War Powers Act and price control for at least one year from their present expiration date of June 30, next, was asked of Congress January 21 by President Truman.

The President urged that action be taken immediately, rather than just before the laws expire, so that industry may know that materials in short supply are going to be controlled and distributed fairly as long as the war-born shortages continue.

"Any uncertainty now as to whether the act will be extended gives rise to price speculation, to withholding of goods from the market in anticipation of rising prices, and to delays in achieving maximum production," the President said in his annual message.

Foreseeing a sharp drop in federal income over the next 18 months, Truman told Congress he could not recommend any further tax relief beyond that granted last year.

A long-range tax reduction program to cover a period of three years will be pressed by the United States Chamber of Commerce when the House Ways and Means Committee takes up the question of revenue revision. Need for a general overhauling of the tax laws is imperative to provide additional impetus to postwar prosperity, the chamber said.

It is pointed out that in the corporate field, there are many technical and administrative provisions that should be changed. For example, the penalty tax on consolidated returns should be repealed, as should the provisions relating to intercorporate dividends. There should be more realistic depreciation and better reorganization provisions, and a remodeling of the 1942 act on foreign war losses.

There is no good reason why the corporate normal and surtax should not be reduced from the present 38 percent the chamber says. It recommends that cuts be approved now for each of the next three years. As an alternative, it is suggested a flat percentage reduction by made in corporation taxes.

The chamber also recommends an overhauling of the individual rate structure or, barring that, another flat cut in the computed tax and a lowering of the maximum tax to 50 percent of taxable income.

## *Synthetic Fuels Plant Award*

Contract for construction of a plant at the new Bureau of Mines synthetic fuels laboratory at Bruceton, Penn., capable of producing 110,000 cubic feet of hydrogen and 120,000 feet of synthesis gas daily, has been awarded the Girdler Corporation of Louisville at a price of $249,000. The plant is to be completed by August 1.

The gases which the plant is designed to produce are required for the investigation of the hydrogenation and gas synthesis processes for producing synthetic oil and gasoline from coal and lignite.

# Texas Plans Full Presentation of Gas Case Before FPC Hearing in Houston

Texas, with a major stake in the outcome of the Federal Power Commission's natural gas hearings, is prepared to present a complete case supporting its opposition to further federal control over the gas industry when the inquiry opens in Houston, Monday, January 28. The sessions will be held in the Federal Court House (Post Office Building).

Charles I. Francis of Houston, counsel for the Governor's Natural Gas Committee which is directing Texas' case, said the state will offer 24 witnesses who will cover every phase of the gas industry.

Members of the FPC will be welcomed to Houston by Mayor Otis Massey. State officials headed by Governor Coke Stevenson then will present the position of the state and the reasons for it. They will be followed by technical experts and industry representatives who will give the viewpoint of the land and royalty owner, the producer and consumer. Technical experts will offer statistical data showing the state's interest in the industry and testify as to operations of distributors, transmission lines and cycling, natural gasoline and carbon black plants.

A tour of the Katy gas field, where a modern cycling plant is in operation, and a butadiene plant along the Houston ship channel has been arranged by Houston petroleum engineers for the Commission and its staff for Saturday, February 2.

Sitting with Commissioner Nelson Lee Smith during the hearing will be Commissioner Harrington Wimberly and Richard Sachse. FPC Chairman Leland Olds may also be present.

Marvin Farrington will sit with the commissioners as trial examiner. This will be the first of the natural gas hearings at which Burton Behling will be in charge of the FPC investigating staff, and Frank Fields will head the FPC investigation legal staff.

The Texas Senate Natural Gas Investigating Committee, headed by Senator T. C. Chadick of Quitman, will attend to observe the proceedings and question witnesses. Other members are Senators Wardlow Lane of Center, Hugy Carney of Atlanta, James Taylor of Kerens and Rudolph Weinert of Seguin.

Francis estimated it will take about 8 or 10 days for state's witnesses and since sessions customarily are not held on Saturday or Sunday, it is probable the hearing will not be concluded before the middle of the second week.

Postponement from March 19 to April 2 of the FPC hearing at Charleston, West Virginia, was announced January 25. The hearing is to be held in the House of Delegates chamber in the state capitol.

The commission also announced that its Chicago hearing to open February 19 will be held in the court room of the Circuit Court of Appeals.

## Slashing Done on Funds Intended for the FPC

An economy-minded House Appropriations Committee last week slashed $591,000 from President Truman's budget estimate of $3,707,000 for operation of the Federal Power Commission through the fiscal year 1947, recommending in the first of the 1947 supply bills that the agency be given $3,116,000 which, it pointed out, is $166,387 more than the provision for this year.

The committee explained that the FPC already is back practically on a peace-time basis by reason of additional funds provided in a deficiency appropriation bill enacted last month, and accordingly will need little additional money to enable it to handle the increased work load brought about by the cessation of hostilities.

Last month, Acting Chairman Leland Olds explained that considerable additional work has been imposed by the February, 1942, amendment to the Natural Gas Act. Further, he said lifting of restrictions indicates a spurt in new pipe-line construction.

"The proposal to use the Big Inch and the Little Big Inch lines for natural gas will have to come before the commission in one way or the other," Olds declared.

### Crude Oil Production in the United States

(Estimates compiled by the OIL WEEKLY. All figures indicate daily averages in barrels.)

| State or District | PRODUCTION IN WEEK ENDED January 26 | January 19 |
|---|---|---|
| Alabama | 650 | 700 |
| Arkansas | 77,000 | 76,750 |
| California | 837,500 | 835,100 |
| Colorado | 23,000 | 28,750 |
| Florida | 100 | 100 |
| Illinois | 206,500 | 204,300 |
| Indiana | 14,100 | 14,200 |
| Kansas | 254,450 | 261,500 |
| Kentucky | 29,500 | 29,800 |
| Louisiana | 367,400 | 366,450 |
| North | 78,750 | 77,600 |
| South | 288,650 | 288,850 |
| Michigan | 45,300 | 46,000 |
| Mississippi | 54,300 | 56,600 |
| Missouri | 100 | 100 |
| Montana | 19,700 | 19,750 |
| Nebraska | 750 | 750 |
| New Mexico | 99,250 | 98,000 |
| New York | 14,100 | 14,500 |
| Ohio | 7,000 | 7,400 |
| Oklahoma | 392,650 | 391,850 |
| Pennsylvania | 34,100 | 36,100 |
| Tennessee | 35 | 35 |
| Texas | 2,036,850 | 2,000,450 |
| Upper Gulf Coast | 511,700 | 488,600 |
| East Texas Field | 320,100 | 320,050 |
| Rest of Eastern Texas | 142,500 | 140,000 |
| Southwest Texas | 338,100 | 328,800 |
| West Texas | 490,650 | 489,500 |
| North Texas | 152,750 | 152,700 |
| Panhandle | 81,050 | 80,800 |
| West Virginia | 8,100 | 8,200 |
| Wyoming | 97,700 | 91,700 |
| Total United States | 4,620,135 | 4,589,085 |

## Resentment Felt Over Russia's Hungarian Grab

Resentment was felt in American oil circles last week regarding confiscation by the Russian army of properties of a Standard Oil Company (New Jersey) affiliate in the Lispe, Hungary, oil field.

At no time since entry of the United States in the war have these properties been under American control, Frank W. Abrams, SONJ board chairman said. They were taken over by the Hungarian government in December, 1941, and since February, 1945, have directed all operations at Lispe. Only recently Standard officials were permitted to survey the properties.

Abrams commented on plans for efficient oil producing and conservation for the field (see "Rosy Russian Oil Recovery Claims," page 25) and said the practices suggested in Budapest of accelerating all output by permitting gas to escape into the air would leave large quantities of oil underground.

"Prior to the war," Abrams stated, "oil was produced at Lispe at the highest rates possible without waste. Plans for developing this field call for saving natural gas produced with oil by recompressing it and returning it underground. Thus, the gas helps to bring more oil to the surface and also is conserved, and some day can be used for heating and other purposes if pipe lines should be available to carry it to the centers of consumption."

## Ruby and Small to China To Aid Oil Development

Glen M. Ruby and Arthur D. Small, vice president and chief petroleum engineer respectively of United Engineering Company, S.A., departed January 17 for a brief trip to China (THE OIL WEEKLY, December 31) to review possibilities for increasing the production of crude petroleum from that country.

The United firm, represented in this country by Hoover, Curtice & Ruby, Inc., has entered into an agreement with the National Resources Commission of China to undertake this work, and Ruby and Small will visit many of the actual or prospective oil areas in China.

Reports of a number of engineers, including M. J. Gavin and Dr. John L. Rich, are to be reviewed by this mission, which will also consult with Chinese engineers responsible for development work to date. Exploratory work in favorable areas close to centers of population will get special attention.

The Resources Commission plans an aggressive program which will involve geological exploration, geophysical work, and drilling. It seeks use of the most modern methods of oil finding, and it is believed they will employ a number of senior American technicians to supervise operations under the direction of the Commission.

A large number of young Chinese engineers have been brought to the United States by the Commission, to work with American companies in order to learn the most up-to-date drilling and production methods.

# No Further Effort to Get Oil Price Increase Unless Subsidy Eliminated

The House Small Business Committee is "sitting tight" on the crude-price situation, but will get into high gear immediately if the Office of Economic Stabilization orders the stripper-well subsidy discontinued, representatives of the committee said last week.

Unable to make any headway with OPA toward getting an increase in crude prices, the committee has no current plans for a further effort in that direction.

Members of the committee expressed the fear that the forthcoming decision of the Office of Economic Stabilization on continuance of the subsidy—already reached but not yet announced—would be to discontinue government payments, and pointed out that such action would precipitate a crisis among the owners of more than 300,000 wells receiving the premiums.

OPA officials also are said to be opposed to discontinuance of the subsidy, realizing that thousands of the small wells would be shut in almost immediately. In that event, it was said, something would have to be done in the interests of conserving the oil in such reservoirs, but there was no indication that the OPA has anything worked out.

Even if some action was taken to give a preferential price to stripper well production, a dangerous situation would be created unless the plan could be put into effect simultaneously with the ending of the subsidy.

Administration officials admit that the issue must be faced squarely sooner or later, but appear to hope that the industry itself will work out a price structure which will keep the stripper wells operating when price control is lifted.

It is generally felt that so long as price control continues the government should maintain the subsidy. The current appropriation for the latter is sufficient to cover payments through to June 30, price control expiration date. President Truman, however, has asked Congress to continue the law for another year.

Some support to the view that the subsidy might be taken off in the near future was given by the action of a House committee last week in approving continuation of the subsidy on sugar but passing over those on petroleum and other commodities.

If the subsidy is taken off, it was stated by Representative Wright Patman of Texas, chairman of the Small Business Committee, an investigation of the situation will be undertaken immediately.

## Allred Opposes Pact

Former Governor James V. Allred, representing Texas oil interests, will go to Washington in February to present opposition to ratification of the Anglo-American Oil Agreement as a treaty during hearings before the Senate Foreign Relations Committee.

## New Nomad Officers Are Installed by Tulsa Group

Newly elected officers of the Tulsa Chapter, Nomads, installed at the sixth annual banquet at the Tulsa Club January 23 included Henry Bourne, president; Russell Hunt, vice president; Russell Tucker, secretary; Earle E. Smith, assistant secretary; M. D. Gilbert, treasurer; K. O. Hoevel, assistant treasurer; J. H. Eustace, sergeant-at-arms; Gene Elder, deputy sergeant-at-arms; Shep Miers and W. G. Green, regents.

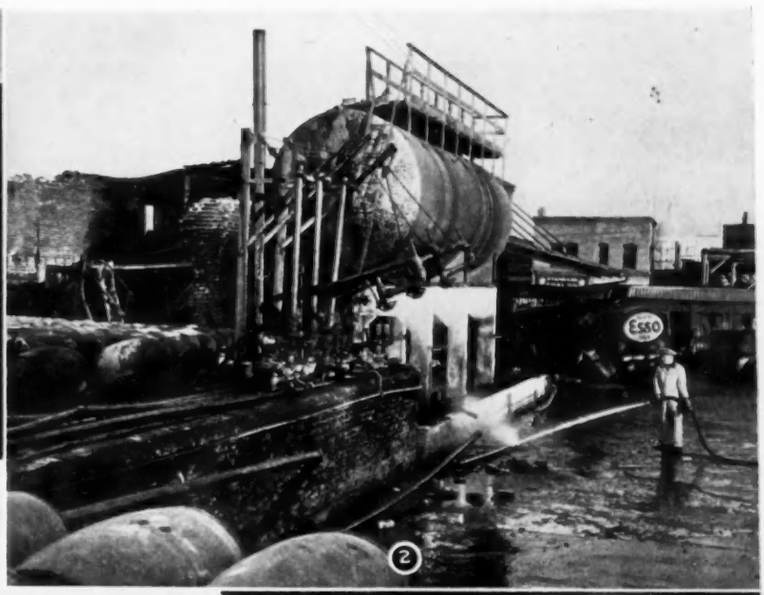
Arrigo Righi, public relations representative of Pan American Airways, predicted that air transportation is of primary importance to world trade and that it will help promote better understanding among nations. About 300 attended.

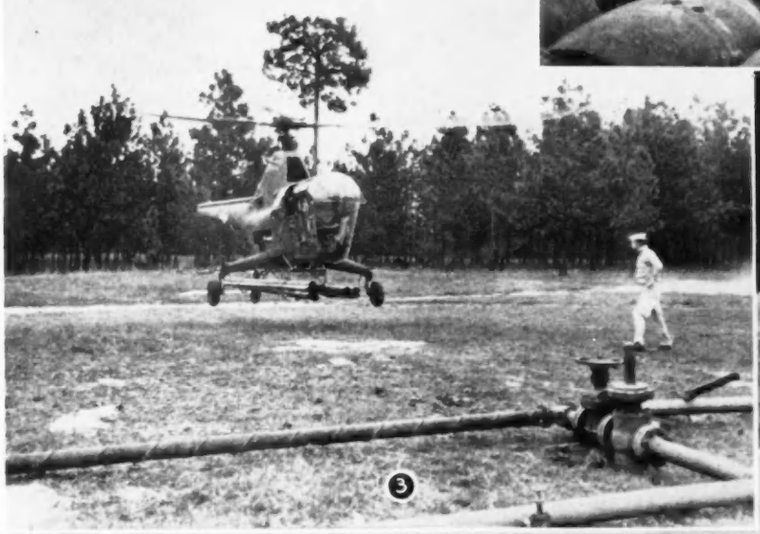
## Nomads Elect

Officers for 1946 have been elected by the Los Angeles chapter of Nomads as follows: President, Wilbur F. Bettis, M. O. Johnston Oil Field Service Corporation; vice president, James V. Robinson, Miller Robinson Company; secretary, Earle Daniels, Hydril Company; assistant secretary, Byron Landis, Web Wilson Oil Tools; treasurer, William McGraw, Western Pipe & Steel Company; assistant treasurer, Thomas G. Martin, Eastman Oil Well Surveys; sergeant-at-arms, Wallace A. Sawdon, editor of *Petroleo*; deputy sergeant-at-arms, Dan Duncan, Emsco Derrick & Equipment Co.; regents, Roland Smith, export representative and Ted Sutter, Baker Oil Tools, Inc.

## 1946 OFFICERS, HOUSTON CHAPTER NOMADS

Newly elected officers of Houston Chapter of Nomads are shown above, left to right as follows: Tom W. Nelson, The OIL WEEKLY, past president and regent; Charles W. Thornhill, Thornhill-Craver Company, president; Charles E. Richards, Gray Tool Company, vice president; C. B. McDonald, A-1 Bit & Tool Company, deputy sergeant-at-arms; Herschel J. Wood, Lebanon Steel Foundry, sergeant-at-arms; C. E. Whitney, Baker Oil Tools, Inc., regent; Harry E. Estes, Reed Roller Bit Company, executive secretary and George E. Tyson, Jones & Laughlin Steel Corporation, secretary-treasurer. Not shown is Jay L. Speece, Gardner-Denver Company, assistant secretary-treasurer. These men were installed at the fifth annual dinner-dance, attended by 317 members and guests at the Rice Hotel January 18.



1. Col. John Leavell of Tulsa presents the Legion of Merit to Lieut. Col. Ralph D. Curtis of Tulsa at a meeting of the Tulsa Engineers Club. The award was made for "meritorious conduct in the performance of outstanding services as chief of the Army-Navy Petroleum Board."

2. Roscoe Williams of Arlington, Va., cools off pipes buckled during a five-alarm fire which started in a distribution plant of Standard Oil Company at Washington, D. C., January 10. There were three explosions during the fire and flames shot 200 feet into the air. Families within a six-block radius were evacuated. —Acme Photo

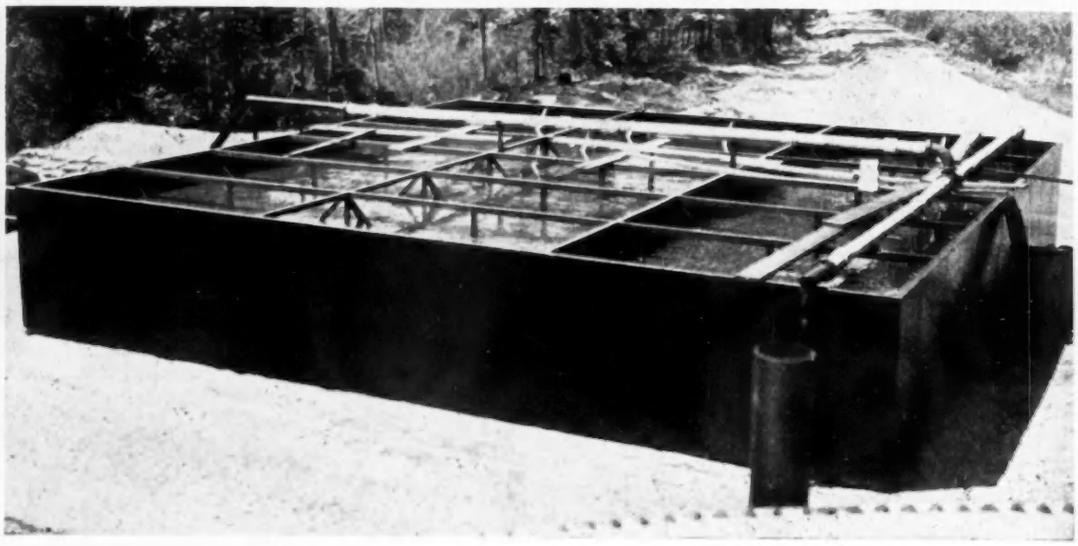
3. Army petroleum distribution experts used helicopters in building pipe lines through Louisiana swamps during secret wartime tests. This photo shows how planes delivered 20-foot sections of pipe. Pumps, storage tanks and other materials were successfully carried by the windmill aircraft. —Acme Photo

4. President Juan Antonio Rios of Chile holds a bottle of oil from the Spring Hill field, about six miles from Puerto Progreso, Tierra Del Fuego, Straits of Magellan. A sample of the oil was presented by Oscar Gajardo, left, vice president of the corporation. —Acme Photo

5. Want to buy a plane? These Curtis C-46 Commandos are among 2000 on sale at Cal-Aero field, Ontario, Cal. Selling price is $35,000. Similar sales are taking place at 49 other air fields throughout the nation. The planes are considered outmoded for military use. —Acme Photo

# Salt Water Disposal Problems

By
OGDEN S.
JONES
Geologist
Kansas State
Board of Health



**Steel settling tank, leak proof storage. A big improvement over earthen pits.**

—Photo Courtesy Sinclair Prairie Oil Company

## Protection of Fresh Water from Pollution Is a Problem that Should Concern Everyone

WHAT to do with the brine or salt water produced and lifted to the surface along with the oil has for years presented a problem. Another phase of the same problem confronts state and local officials charged with the protection of fresh waters from pollution.

The plains states are not only situated in a hard water belt but seldom during the years have they had adequate supplies of usable surface or ground waters. The accumulative effects of industrial expansion, war plants, population increases and dry hot summers with consequent accelerated evaporation rates have placed a premium on the water supplies. Fresh water is one of our ranking natural resources and water conceivably can be the controlling factor in economic growth and industrial expansion. It is, therefore, increasingly evident that the protection of this vital resource from pollution should be of concern to all of us. It is readily granted that oil is of paramount importance in this age and increasingly so while we were at war, as we have been called upon to supply not only this nation but several of our allies. However, it must be borne in mind that oil even in those times should not be produced with a total disregard to other natural resources, water in particular. Farms and municipalities have a right to expect their respective water sheds to be kept free from contamination. Farms and cities have an economic life expectancy of a much longer duration than an oil field. It is, therefore, unjust to allow that expectancy to be jeopardized by the improper handling of oil field brines.

The purpose of this article is to present the problem of brine disposal together with recognized practices designed to make that disposal adequate. Seaboard oil fields do not face the same brine disposal problem as do the fields located in the interior of the country. Brines produced along our coasts may be dumped into the oceans or Gulf provided no oily waste is allowed to accumulate on the shores and in particular along bathing beaches. The interior of the country has no such receiving reservoir to use for excess brines but must handle them in a manner that will not constitute a hazard to the fresh water supplies. When a highly concentrated brine or mineralized water comes into contact with a potable water the fresh water is always the loser. To keep this contact from taking place due to the improper handling of oil field brines is the crux of the problem.

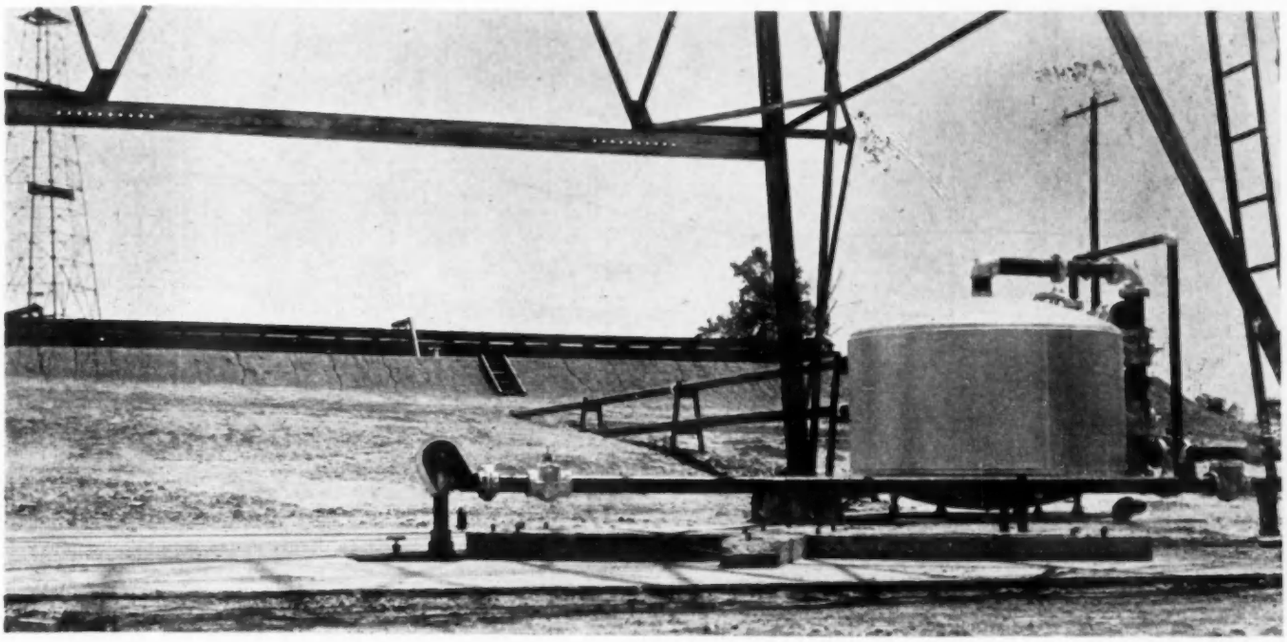
We cannot to any appreciable extent control nature's brines moving out from shallow geological formations and entering surface drainage, but we can do much to control or curb the highly concentrated brines produced with the oil. Fortunately, nature carries on the leaching out processes very slowly and not as a rule over wide areas. Man, however, in his search for oil has tapped deep seated salt waters which as soon as allowed to reach the surface present immediately the problem as to how they should be handled. Should they be allowed to flow unconfined into the surface drainage, should they be stored in earthen ponds, should they be held in storage awaiting controlled dilution or should they be put back underground? These questions and many others face the oil operator and those concerned in fresh water protection.

Water should be studied from both quantitative and qualitative aspects. The quantity of water in a drainage basin depends upon such factors as the distribution of rainfall, snow, runoff, evaporation, transpiration and water storage facilities both above and below the surface, including both natural and artificial storage. The quality of the water moving down a water shed is controlled by geological features, soil practices, industrial waste disposal and sewage disposal. The wise farmer keeps his cultivation back from stream margins, thereby lessening the silt load carried during spring rains. Fish will not thrive in a stream carrying an overburden of silt, especially if the stream is normally clear. Likewise dumping untreated sewage into a stream often lowers the dissolved oxygen content of the water to the point where the fish cannot survive.

### What Is an Oil Field Brine?

We are accustomed to thinking of sea water as the "briny deep" and when the drill bit goes into salt water the drillers say we have "hit the ocean." However, sea water with its 20,000 parts per million of chlorides is fairly mild as compared to some of the oil field brines of more than six times the above concentration of chlorides. In total solids sea water may average some 35,000 parts per million as against an oil field brine with a concentration of 248,000 parts per million, or more than seven times as much.

Oil field brines are chemically and



**Filtration plant, showing steel leak-proof settling tank (behind dike) in background and pressure filter and injection well in foreground.**
—Photo Courtesy Sinclair Prairie Oil Company

biologically inert, but due to the concentration of mineral salts a grave hazard to farm and municipal water supplies presents itself when and where these salts are allowed to reach surface drainage. These mineral wastes change only in the degree of concentration and providing there is not an adequate supply of diluting water present, contamination of a water supply may be expected. Chlorides of calcium, magnesium and sodium are the most common; however, some of the rare salts are often present and probably in some areas to a commercial extent. The war has made the extraction of magnesium from brines and sea water of additional importance. Sea water contains from 1000 to 1200 parts per million of magnesium while an oil field brine may contain several times that amount. Due to the relatively low concentrations of magnesium in sea water the extraction of any considerable amount of magnesium entails the handling of immense quantities of water. For that reason the exploitation of oil field brines as a magnesium source may be expected, providing sufficient concentrations exist in a brine that can be produced in the required volume. It goes without comment that an oil company that is able to produce magnesium in commercial quantities might conceivably pay the disposal costs of the produced brines of an entire field.

A comparative tabulation of an oil field brine and other waters is given in Table 1 in order that the concentrations involved may be more easily visualized.

From Table 1 it is noted that one of the oil field brines in total solids is of a concentration of 248 times the total solid maximum allowed by the U. S. Public Health Service in standard drinking water. The amount of chloride-free water in amounts necessary to reduce by dilution the highly concentrated brine to the drinking water standard would run into large figures. For example, it would require 400 barrels of chloride-free water to dilute one barrel of brine of 100,000 p.p.m. chloride content down to 250 p.p.m., the maximum amount for drinking water as set up by the U.S.P.H. Keeping this 400 to 1 ratio in mind figure how many barrels of fresh water would be needed to reduce 10,000 barrels of the above brine to potable water. It would mean diverting 4 million barrels, or 168 million gallons of fresh water, which is no mean supply.

It can be readily understood, therefore, that brine of high concentrations must be kept from coming into contact with fresh waters. It must be realized that once a potable ground water is brine contaminated it may take years

**Pond improperly located in path of drainage. This bad practice gives no consideration to the protection of fresh water supply.**

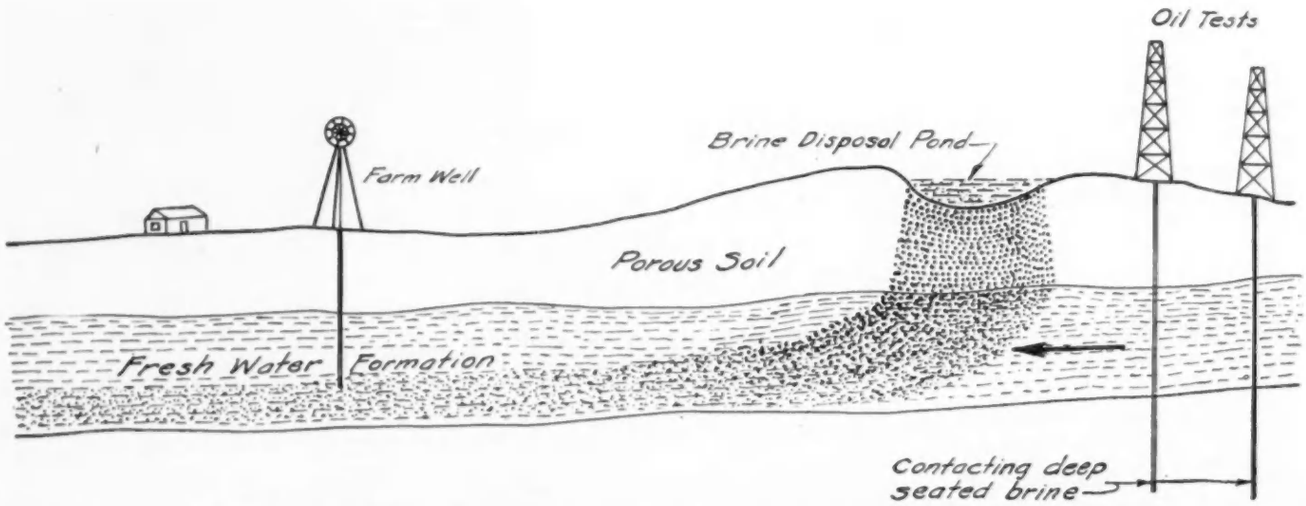



**Figure 1—This illustration portrays the fallacy of attempting to store oil field brines in earthen ponds in areas of porous surface soils, which in many instances continue porous down to shallow fresh water beds. The down-dip farm well is likely to be ruined. Heavy dotted area denotes salt water infiltration.**

to clear the water even though the brine polution is abated at the source.

### Early Brine Disposal

Strange as it seems, salt water wells were in operation in this country as early as 1800, about 59 years before the Drake oil well was brought in. The salt well operators were quite disgusted at the appearance of oil in some of their operations. Not knowing what to do with it they often moved to new locations to get away from what they called a "messy nuisance."

Salt water was, therefore, the goal of the early drillers and oil was the waste problem. Now, however, the problem of waste is reversed in that oil is the goal and salt water the problem child. The oil boom following close on the heels of Colonel Drake's well saw accelerated drilling activities with most of the early locations being made in creek bottoms. The anticlinal theory of oil accumulations had not been advanced at that time. The early operators in their wild search for the liquid gold gave no thought to the brine often encountered. Likewise, landowners were so excited over the prospects of royalty payments and lease rentals that the operator could put the excess salt water any place as far as they were concerned. The oil boom and the Civil War were the high lights of the day, and there seemed no reason to be concerned about salt water from the oil development going unchecked into the creeks.

In the postwar days after the troops had been mustered out and life once more resumed an even keel it was noted that some of the once good fishing streams were not so abundant with fish life; likewise the fur-bearing animals were disappearing from their habitats. Much of the once luxuriant vegetation bordering the streams began to show signs of extermination. Dead trees and barren soils pointed an accusing finger at the perpetrators of improper brine disposal.

Even with signs pointing to the harmful practices of allowing salt water to enter the drainage, few if any complaints were lodged against the oil operator. Land was cheap and if the water supply turned salty at one place the farmer had only to move west. The frontier was not so far from the economic frontier and there was a constant shift of population to the west. The oil activity for quite some time was localized in a small portion of Pennsylvania in an area not given to intensive farming. For this reason not much attention was given to waste disposal or water supply. It was years before the problem became acute.

The oil industry later moved into the well-established farming regions of Ohio, Indiana, and West Virginia. Kansas had an early oil excitement in the 1870's but not of commercial importance until the turn of the century. The early development was confined to the southeast counties of the state. Here as in the East little attention was given to controlling the salt water produced with the oil.

Southeastern Kansas, together with certain areas of Oklahoma, shows even at this date the surface scars of uncontrolled brine discharge as well as unsightly oil spills. This same condition exists in many areas east of the Mississippi river. As towns outgrew the early water supplies, consisting predominantly of wells, and turned to more abundant sources, attention was called to the condition of the streams. The day of uncontrolled liquid wastes produced by the oil industry was approaching the time when municipalities took notice of the condition of streams. Farmers and city officials began to scrutinize oil operations and in particular the manner in which the disposal of salt water was handled.

### Brine Ponds

Following the era of uncontrolled brine discharge, the salt water (brine) pond was put into use as a means of

**TABLE 1**

**Composition of Miscellaneous Kansas Waters Compared to Sea Water and Drinking Water**

| | Kaw (Lawrence) | River Water Neosho (Iola) | Verdigris (Coffeyville) | Kansas City Lime-Brine | Sea Water | U. S. Public Health Service Drinking Water Standard |
|---|---|---|---|---|---|---|
| Calcium | 89 | 53 | 56 | 9,000 | 353 | |
| Magnesium | 21 | 24 | 13 | 4,290 | 1,045 | 100 (Max.) |
| Sodium | 52 | 46 | 62 | 63,275 | 11,500 | |
| Carbonate | 10 | 0 | 0 | ..... | .... | |
| Bicarbonate | 300 | 200 | 164 | 94 | .... | |
| Sulphate | 77 | 116 | 16 | ..... | 2,614 | 250 (Max.) |
| Chloride | 54 | 83 | 124 | 127,220 | 19,488 | 250 (Max.) |
| Nitrate | 3 | 4.4 | 2.2 | ..... | | |
| Silica | 17 | 23 | 17 | ..... | | |
| Total Solids | 490 | 539 | 410 | 248,000 | 35,000 | 1,000 (Max.) |

Note—Figures denote parts per million. The three towns are located in Kansas.

**Brines Typical of Several Producing Formations and Areas in Kansas**

| Radical | Chase | Valley Center | Valley Center | Rits Canton | Rainbow Bend |
|---|---|---|---|---|---|
| Calcium | 1,193 | 1,507 | 9,800 | 4,420 | 12,888 |
| Magnesium | 346 | 428 | 4,290 | 2,230 | 2,510 |
| Sodium | 8,260 | 15,200 | 63,275 | 9,230 | 55,780 |
| Bromide | 32 | 48 | 633 | ..... | 376 |
| Carbonate | 0 | 0 | 0 | 0 | 0 |
| Bicarbonate | 644 | 339 | 94 | 156 | 43 |
| Sulphate | 1,578 | 966 | 0 | 10 | 457 |
| Chloride | 12,750 | 22,080 | 127,220 | 28,600 | 115,580 |
| Total Solids | 25,210 | 44,820 | 248,600 | 52,640 | 210,550 |
| Formation | Silicious | Simpson | K.C. Lime | Viola | Bartlesville |
| Depth | 3,250 | 3,375 | 2,600 | 3,350 | 3,200 |

Note—Radicals are expressed in parts per million.

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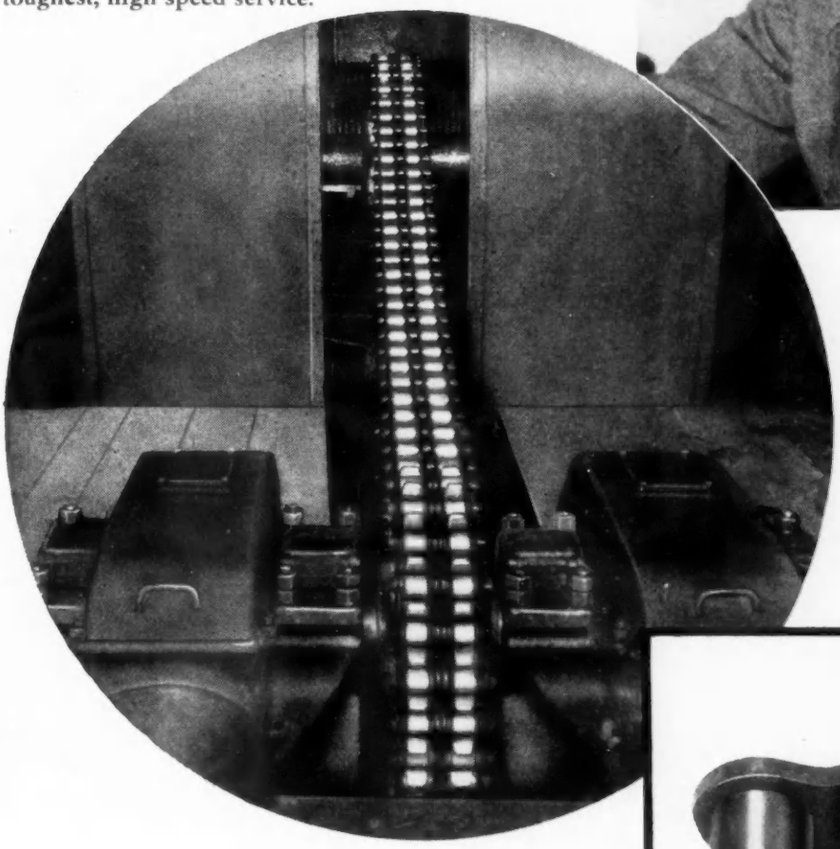

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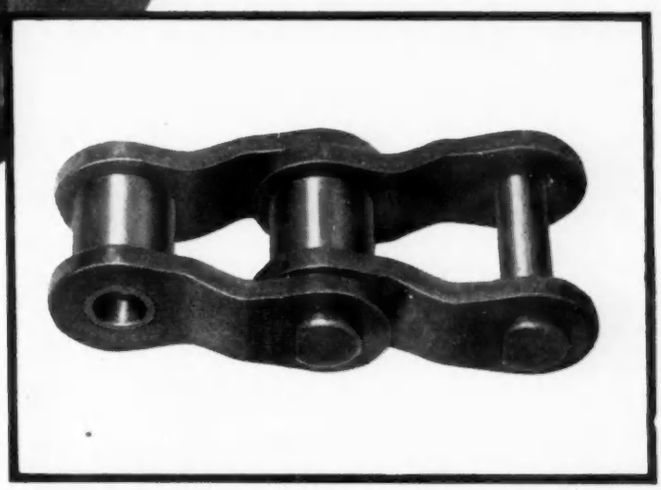

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**Cut embankment allows overflowing salt water pond to discharge into drainage.**

keeping the mineralized water out of the drainage. It was soon evident that the use of earthen storage for liquid wastes led to early contamination of the shallow ground water. Take, for instance, the porous soil areas which cover much of the surface in the plains states. It has been proved conclusively that all earthen ponds leak to some degree and those constructed in porous soils to an alarming extent. The leaks occur most readily at the contact between the earth fill and the original ground or directly through the new embankment. However, the most insidious leak is the downward infiltration of the impounded mineral wastes. Certain pollution quickly follows this infiltration in the many instances where no impervious stratum interposes between the surface and the first fresh water (Figure 1.) It is obvious, however, that should there be an impervious stratum the time of pollution is extended only until the water moves down dip, perhaps to the outcrop, or until a salt water aquifer is built up above one of fresh water.

### Earthen Ponds Futile

It is most gratifying to note that most of the major oil companies and many of the leading independents realize that the attempt to store brines in earthen ponds is quite futile. Auger holes placed downstream from a salt water pond, will quickly dispel the thought that the pond is watertight.

It was formerly contended that these reservoirs be called evaporation ponds. In the first place most of them are far too limited in surface area for evaporation to have much effect. Again evaporation and rainfall so nearly compensate each other in some areas that a few cloudy days each summer month, to say nothing of the winter months, would mean a gain in gauge height. To make it still more difficult the steady input would certainly spell disaster and result in overtopping. Solar evaporation does not in another sense contribute to the solution of the problem because only water vapor is lifted from the pond, thereby perhaps reducing the volume of water but leaving a more concentrated brine and finally a residue of total solids. Solar evaporation depends upon several unstable factors such as air temperature, temperature of the water surface, wind movement and humidity. It is obvious that only for a few days each year could it be expected that all the evaporation factors would bear such a favorable aspect to each other as to be conducive to high evaporation rates.

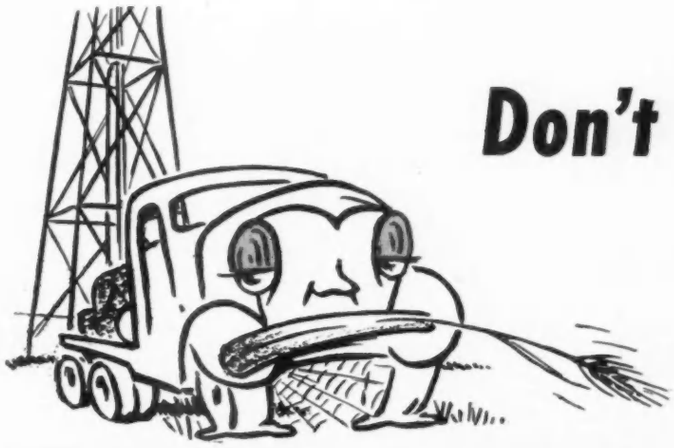
The temptation on the part of a few heedless or unscrupulous operators to cut the dikes or scour the bottoms of brine ponds makes this type of brine disposal most unsatisfactory. The landowner before he signs a lease should insist upon adequate brine disposal. The landowners is fairly complaisant as long as royalty checks are coming in and only after their discontinuance does he tardily think about his farm's water supply. The oil company can save much useless litigation, not to mention ruined water supplies, by making early provision for proper brine disposal. Most oil companies are now including costs for adequate brine disposal as a legitimate item in their lifting costs. A makeshift earthen reservoir built in a porous soil area is seldom full of brine due to the fact that downward infiltration quite often is equal to or in excess of the input. In areas of tight, nearly impervious, shales the same input would quickly fill the pond to the overtopping point. In the first instance the ground water is contaminated and in the second case the surface drainage bears the pollution load. It should be evident that pond storage of brines can be only a temporary expedient and that other methods of disposal for the produced brine should be substituted early in the life of the lease. It may not be economically justifiable in the older fields located in areas of fairly impervious shales to insist upon 100 percent underground disposal. Other uses for the waste water in those fields will be taken up in a later article. In the new flush fields in the porous soil areas adequate brine disposal must of necessity be expected.

A new practice of constructing cement-lined brine retention ponds has been worked out in the East Texas field which could be adopted elsewhere. The new process is to build the pond in the conventional manner then spray the sides and bottom with cement. As much as 10,000 square feet per day can be completed. As a rule a wire mesh is laid down and during the spraying this is lifted slightly to insure its being imbedded in the cement. Usually the cement spray will build up from two to two and one-half inches of side wall and perhaps four to six inches on the bottom. However, providing the cement does not crack, the question of how to handle the residue of total solids presents a real problem.

Evaporation of brines by applying heat has been tried in a small way but even with a cheap fuel the heavy residue of salt presents the problem of what to do with it. For instance it would take 154,000 cubic feet of 1000 B.t.u. gas to evaporate 400 barrels of water. If this water contained 80,000 parts per million chlorides, there would be a residue of over 11,000 pounds to dispose of at the end of each day's run which would be both expensive and burdensome.

Several times it has been brought to our attention that a brine pond located on a hillside is contaminating the water in two separate water courses. The overtopping and seepage through the embankment goes into the surface drainage below the pond while the downward infiltration, providing the strata dip away from the pond site into the hill, will move down dip and come out on the other side of the hill either on the surface or into some ground water bed. Such a situation accentuates the hazard to the fresh water from disposal of brines into earthen ponds. It goes without comment that a brine pond placed in a water course not only will wash out but shows that the operator has no conception or regard for water conservation and in particular for downstream users dependent on the stream for stock watering.

*Subsurface brine disposal will be discussed in an article next week.—The Editor.*



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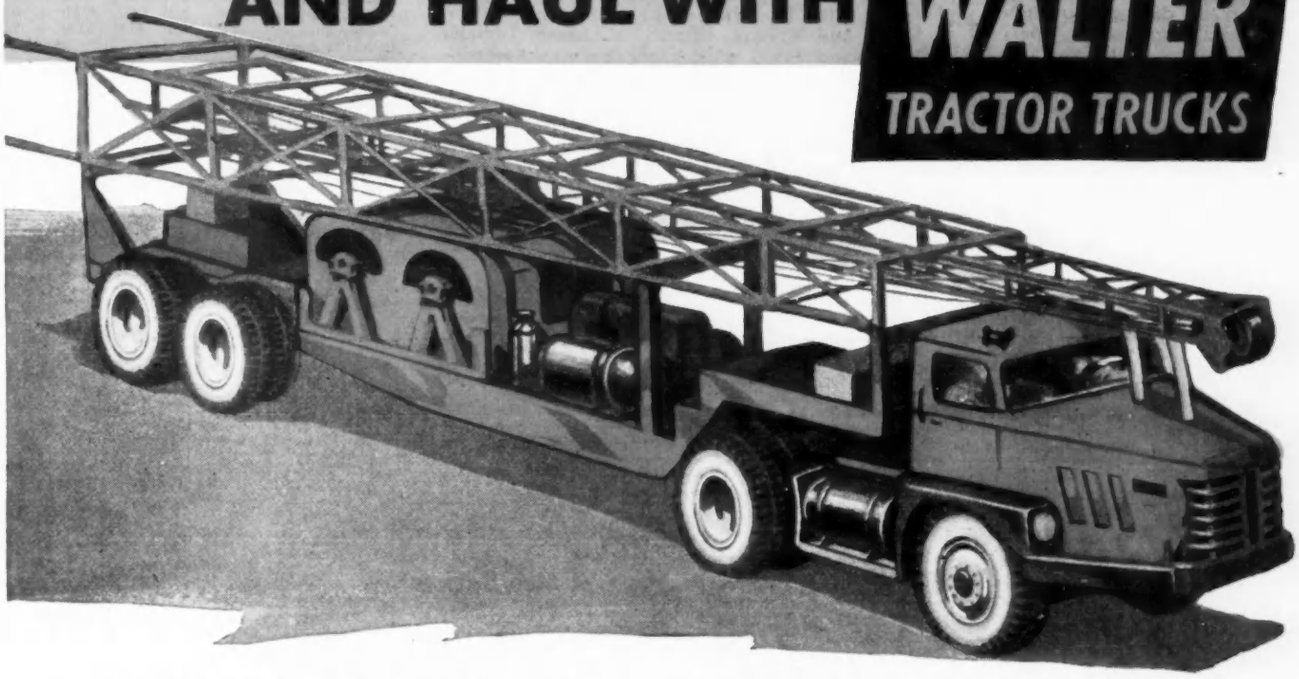

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# December Wildcat Completions Drop But Year Sets New High

EXPLORATORY completions showed a sharp letup in December averaging 74.8 per week compared with 93.5 weekly in November and 81.6 weekly in October. The decline was in line with a slight slowing of drilling in general, partly attributable to the holiday season and cold weather.

Although the volume of exploratory completions was off, the ratio of successful tests among the wells completed remained in the neighborhood of 23 percent during November and December as against 13.7 percent in October. Tentative figures for 1945 show an average successful completion ratio of 18.8 percent as against 18.6 percent in 1944.

### Total Is Same

Total new oil discoveries for the year remained practically the same, decreasing from 475 to 473 or 0.4 percent. New fields showed a decrease of 3.4 percent and new pays in existing fields showed a gain of 6.0 percent, while extensions to established fields had a gain of 14.1 percent.

Gas and distillate discoveries showed slight increases with a falling off of extensions in this type of field.

Approximately ½ the new discoveries for December were in Texas, where 33 were recorded. Louisiana was second with 10, followed by Oklahoma with 9, and Kansas, Illinois, Michigan, Indiana and Ohio with 5, 3, 2, and 1, respectively.

Final returns on wildcat operations for the year indicate a total of 4337 exploratory completions, falling 663 wells short of the 5000 set for the industry by PAW. However a new annual record was set in wildcatting, the total of 4324 wells drilled in 1944 being exceeded by 13. Indications are that the diligent search for new reserves will continue throughout 1946. While some companies

**Summary of Results of Exploratory Drilling**

| ITEM | Dec. 1945 | Nov. 1945 | JAN.-DEC. 1945 | JAN.-DEC. 1944 | Percent Diff. |
|---|---|---|---|---|---|
| Oil Discoveries | 42 | 50 | 473 | 475 | — 0.4 |
| New Fields | 25 | 29 | 315 | 326 | — 3.4 |
| New Pays | 17 | 21 | 158 | 149 | + 6.0 |
| Distillate Discoveries | 2 | 5 | 44 | 41 | + 7.3 |
| New Fields | 2 | 2 | 36 | 32 | + 12.5 |
| New Pays | | 3 | 8 | 9 | — 11.1 |
| Gas Discoveries | 13 | 15 | 121 | 117 | + 3.4 |
| New Fields | 12 | 14 | 106 | 102 | + 3.9 |
| New Pays | 1 | 1 | 15 | 15 | |
| **Total Discoveries** | **57** | **70** | **638** | **633** | **+ 0.8** |
| **Extensions to Fields** | **12** | **13** | **180** | **172** | **+ 4.7** |
| Oil Fields | 10 | 10 | 154 | 135 | + 14.1 |
| Distillate Fields | 1 | | 6 | 10 | — 40.0 |
| Gas Fields | 1 | 3 | 20 | 27 | — 25.9 |
| **Total Prod. Tests** | **69** | **83** | **818** | **805** | **+ 1.6** |
| **Dry Holes** | **230** | **291** | **3519** | **3519** | |
| (Weekly Average) | 57.5 | 72.8 | 67.7 | 66.4 | + 2.0 |
| Wildcats | 228 | 288 | 3444 | 3424 | + 0.6 |
| New Pays | 1 | | 39 | 22 | + 77.3 |
| Outposts | 1 | 3 | 36 | 73 | — 50.2 |
| **Total Expl'tory Tests** | **299** | **374** | **4337** | **4324** | **+ 0.3** |
| (Weekly Average) | 74.8 | 93.5 | 83.4 | 81.6 | + 2.2 |
| Percent Productive (Weekly Average) | 23.1 | 22.2 | 18.8 | 18.6 | |
| Percent Dry (Weekly Average) | 76.9 | 77.8 | 81.2 | 81.4 | |

Dry hole completions are from weekly reports and totals represent completions for 4 weeks in November, 1945; 4 weeks in December, 1945; 52 weeks in Jan.-Dec., 1945; 53 weeks in Jan.-Dec., 1944.

**Results of Exploratory Drilling in December and Year 1945, by Districts**

| State or District | MONTH OF DECEMBER, 1945 | | | | | | | | | | | | | | YEAR, 1945 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Productive Tests | | | | | | | | | Total Productive | Unproductive Tests | | | Total Exploratory Tests | Productive Tests | | | | | | | | Unproductive Tests | | | | | Total Exploratory Tests | |
| | New Fields | | | New Pays | | | Extensions | | | | Wildcats | New Pays | Outposts | | New Fields | | | New Pays | | | Extensions | | | Total Productive | | Wildcats | New Pays | Outposts | Total Dry | | | |
| | Oil | Gas | Dis. | Oil | Gas | Dis. | Oil | Gas | Dis. | | | | | | Oil | Gas | Dis. | Oil | Gas | Dis. | Oil | Gas | Dis. | 1945 | 1944 | | | | 1945 | 1944 | 1945 | 1944 |
| Alabama | | | | | | | | | | | 1 | | | 1 | 1 | 1 | | | | | | | | 2 | 3 | 21 | | | 21 | 23 | 23 | 26 |
| Arizona | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 6 | | 6 |
| Arkansas | | | | | | | | | | | 6 | | | 6 | 1 | | | 1 | | | | | | 2 | 10 | 41 | 1 | 1 | 43 | 67 | 45 | 77 |
| California | | | | | | | | | | | 19 | | | 19 | 4 | 1 | | 4 | | | 4 | 2 | | 15 | 32 | 280 | | 2 | 282 | 252 | 297 | 284 |
| Colorado | | | | | | | | | | | 3 | | | 3 | | | | | | | 5 | | | 5 | 7 | 11 | | | 11 | 9 | 16 | 16 |
| Florida | | | | | | | | | | | 1 | | | 1 | | | | | | | | | | | | 13 | | | 13 | 7 | 13 | 7 |
| Georgia | | | | | | | | | | | | | | | | | | | | | | | | | | 6 | | | 6 | 8 | 6 | 8 |
| Illinois | | | | 1 | | | 3 | | | 4 | 24 | | | 28 | 28 | | | 26 | | | 49 | | | 103 | 102 | 386 | | | 386 | 368 | 489 | 470 |
| Indiana | | 2 | | | | | | | | 2 | | | | 2 | 5 | 3 | | 2 | | | 2 | | | 12 | 12 | 87 | | | 87 | 70 | 99 | 82 |
| Iowa | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | 2 | 1 | 2 |
| Kansas | 2 | 2 | | | | | 1 | | | 5 | 15 | | | 20 | 44 | 14 | | 11 | | | 20 | 5 | | 94 | 71 | 317 | | | 317 | 445 | 411 | 516 |
| Kentucky | | | | | | | | | | | | | | | 8 | 1 | | 1 | | | 2 | | | 12 | 30 | 90 | | | 90 | 120 | 102 | 150 |
| Louisiana | 3 | 1 | 1 | 4 | | | 1 | | | 10 | 10 | | | 20 | 23 | 6 | 9 | 20 | | | 5 | 1 | 2 | 66 | 46 | 132 | | 3 | 135 | 126 | 201 | 172 |
| North Louisiana | 2 | 1 | | | | | 1 | | | 4 | 7 | | | 11 | 8 | 6 | 1 | 2 | | | 3 | 1 | 1 | 22 | 14 | 82 | | 2 | 84 | 81 | 106 | 95 |
| South Louisiana | 1 | | 1 | 4 | | | | | | 6 | 3 | | | 9 | 15 | | 8 | 18 | | | 2 | | 1 | 44 | 32 | 50 | | 1 | 51 | 45 | 95 | 77 |
| Michigan | 1 | 1 | | | 1 | | | | | 3 | 15 | | 1 | 19 | 16 | 7 | | 4 | 3 | | 1 | | | 31 | 20 | 234 | 3 | 9 | 246 | 217 | 277 | 237 |
| Mississippi | | | | | | | | | | | 5 | | | 5 | 2 | 1 | 2 | | | | 6 | | | 11 | 6 | 121 | | | 121 | 86 | 132 | 92 |
| Missouri | | | | | | | | | | | | | | | | | | | | | | | | | | 20 | | | 20 | 11 | 20 | 11 |
| Montana | | | | | | | | | | | | | | | 4 | 1 | | 2 | | | 1 | | | 8 | 7 | 16 | | | 16 | 40 | 24 | 47 |
| Nebraska | | | | | | | | | | | 1 | | | 1 | | | | | | | | | | | | 4 | | | 4 | 11 | 4 | 11 |
| New Mexico | 1 | | | 1 | | | | | | 2 | 4 | | | 6 | 3 | 1 | | 6 | 3 | | 3 | | | 16 | 13 | 65 | 2 | 1 | 68 | 60 | 84 | 73 |
| North Carolina | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | |
| Ohio | | | | | | | | 1 | | 1 | 7 | | | 8 | | 15 | | 1 | 1 | | 2 | 9 | | 28 | 43 | 66 | | | 66 | 76 | 94 | 119 |
| Oklahoma | 6 | 2 | | | | | 1 | | | 9 | 18 | | | 27 | 59 | 18 | 3 | 10 | 3 | | 16 | 2 | | 111 | 76 | 299 | | | 299 | 244 | 410 | 320 |
| South Dakota | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | |
| Tennessee | | | | | | | | | | | | | | | | | | | | | | | | | | 4 | | | 4 | 4 | 4 | 4 |
| Texas | 12 | 4 | 1 | 11 | | | 4 | | 1 | 33 | 99 | 1 | | 133 | 113 | 35 | 22 | 65 | 4 | 8 | 31 | 1 | 4 | 283 | 300 | 1203 | 33 | 17 | 1252 | 1242 | 1536 | 1542 |
| E. Texas Border | | 2 | | | | | | | | 2 | | | | 2 | 1 | 6 | 3 | | | | | | | 10 | 5 | 19 | | | 19 | 14 | 29 | 19 |
| Rest of E. Texas | | | | | | | | | | | 4 | | | 4 | 2 | 2 | 1 | 2 | 1 | 3 | | | | 11 | 17 | 66 | 4 | 2 | 72 | 111 | 83 | 128 |
| North Texas | 3 | | | 3 | | | | | | 6 | 31 | 1 | | 38 | 31 | 1 | | 18 | 1 | | 5 | | | 56 | 68 | 305 | 7 | 2 | 314 | 291 | 370 | 359 |
| West Central Tex | 2 | 1 | | 2 | | | | | | 5 | 8 | | | 13 | 15 | 5 | | 7 | | | | | | 27 | 22 | 123 | 4 | | 127 | 121 | 154 | 143 |
| West Texas | 2 | | | 3 | | | 3 | | | 8 | 10 | | | 18 | 24 | | | 13 | | | 18 | | | 55 | 43 | 192 | 13 | 8 | 213 | 184 | 268 | 227 |
| Panhandle | | | | | | | | | | | 1 | | | 1 | | | | | | | | | | | | 9 | 1 | | 10 | 7 | 10 | 7 |
| Upper Gulf Coast | 1 | | | 1 | | | | | 1 | 3 | 16 | | | 19 | 16 | 6 | 9 | 17 | | 1 | 6 | | 4 | 59 | 43 | 141 | 4 | 3 | 148 | 135 | 207 | 178 |
| Lower Gulf Coast | 2 | | 1 | 2 | | | | | | 5 | 15 | | | 20 | 18 | 10 | 8 | 4 | 2 | 4 | 1 | 1 | | 48 | 70 | 178 | | | 178 | 174 | 226 | 244 |
| Southwest | 2 | | | | | | 1 | | | 3 | 11 | | | 14 | 4 | 2 | 1 | 4 | | | 1 | | | 12 | 28 | 118 | | 1 | 119 | 145 | 131 | 173 |
| South Central | | 1 | | | | | | | | 1 | 3 | | | 4 | 2 | 3 | | | | | | | | 5 | 4 | 52 | | 1 | 53 | 60 | 58 | 64 |
| Utah | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | 1 |
| Washington | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 1 | |
| West Virginia | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 21 | | 6 |
| Wyoming | | | | | | | | | | | | | | | 4 | 2 | | 5 | 1 | | 7 | | | 19 | 23 | 24 | | 3 | 27 | 22 | 46 | 45 |
| Total U. S. | 25 | 12 | 2 | 17 | 1 | | 10 | 1 | 1 | 69 | 228 | 1 | 1 | 299 | 315 | 106 | 36 | 158 | 15 | 8 | 154 | 20 | 6 | 818 | 805 | 3444 | 39 | 36 | 3519 | 3519 | 4337 | 4324 |

have drilled most of their prospects, other companies, including most of the majors, are planning active exploration and wildcatting programs, and manpower and materials should be sufficient to carry them out.

The pressure for new reserves will serve to create openings for returning veterans and will prevent drains on reserves caused by the return of the expected upsurge in highway traffic. Company officials recognize that the development of reserves is a prolonged job and that it takes several years to put a wildcat area in the list of producing fields. Therefore, exploratory holes must be contemplated now to meet the demands of several years hence.

### Labor Question

Of course the labor situation may upset any predictions for the months ahead. Civilian consumption of petroleum products has not filled the gap left by the cancellation of Army contracts due to the lack of automobiles, among other reasons. As long as the production of autos is retarded, it will have an effect on the oil market and on new drilling operations. The labor situation in the steel industry casts a shadow over acquisition of drilling and production materials and causes hesitation in mapping new programs.

Other features of the outlook for 1946 will be covered in the February 11 Yearbook Forecast Issue of THE OIL WEEKLY.

## Western Kansas Exploration During 1944 Is Reviewed

A review of oil and gas exploration in Western Kansas during 1944 has been completed by Dr. Walter A. Ver Wiebe and issued by the State Geological Survey of Kansas as Bulletin No. 56.

Dr. Ver Wiebe reveals that exploration for oil and gas in Kansas reached an all-time high during 1944 with at least 1508 test wells drilled in the western part of the state, of which 666 were completed as oil wells and 98 as gas wells.

According to the bulletin, 53 new oil and gas pools were opened in Western Kansas during 1944 and the state as a whole produced 99,853,104 barrels of oil and 134 billion cubic feet of gas, all of which, with the exception of 7 billion feet, were produced in the western part of the state.

Tests for oil and gas were drilled in 50 Western Kansas counties and production obtained in 31 counties. Kiowa and Stanton counties were added to the list of producing counties. More than 100 wells were drilled in each of four counties of Western Kansas, of which Barton County had 235 with 126 producers. Russell County 186, of which 106 were producers, Stafford County 153, of which 83 were producers, and Pratt County 103, of which 70 were producers.

The year saw extensive geophysical and core-drilling and partly on the basis of such work the state owes its 53 new pools. The total number of wildcat wells drilled in Western Kansas during 1944 was 565 of which 245 were extension wildcats, 175 ordinary wildcats and 145 rank wildcats.

## New Oil and Gas Fields and New Pay Horizons Discovered in the United States in December, 1945

Also Important Extensions to Established Fields

| COUNTY | FIELD | COMPANY, WELL AND LOCATION | Date Spudded | Date Completed | Total Depth (Feet) | Completion Horizon (Feet) | [1]Name, Character and Age of Producing Formation | [2]Initial Production Method and Choke | Gravity of Oil | [3]Structure: [4]Method of Discovery | Tentative Evaluation of Discovery or Extension (Opinion of Relative Importance of Area from General Viewpoint of the Industry Based on Pertinent but Necessarily Incomplete Data; Later Development or More Complete Data Obviously Might Require Revision of this Tentative Opinion). |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **ILLINOIS—New Oil Pay** | | | | | | | | | |
| Edwards | Samsville, N | Magnolia's Howard-Obold 1, nw sw ne 30-1n-14w | 11-13-45 | 10-29-45 | 2912 | 2907-2912 | Paint Creek sd; Miss | P 44; 6 wtr | .... | ..... | Apparently same pay as that reported as Bethel in discovery well. |
| | | **ILLINOIS—Oil Field Extensions** | | | | | | | | | |
| Coles | Mattoon | J. F Hinkle's W. A. Myers Comm. 1, Nw se se 15-12n-7e | 11- 7-45 | 12- 4-45 | 2010 | 1963-2004 | Rosiclare sd; Miss | P&F 320 | .... | ..... | ¾ mi fr prod, v it') wells to n, s. and se. |
| Coles | Mattoon | Luttrell's Crews 1, sw nw sw 12-12n-7e, 1 mi ext | 11-19-45 | 12-27-45 | 1973 | 1941-1961 | Rosiclare sd; Miss | P 158 | .... | ..... | 1 mi e ext to n end Mattoon pool. |
| Wayne | Clay City, Consol. | Olson Drilling's O. Roush 1, ne se ne, 15-1n-7e, 1 mi ext | 12- 5-45 | 12-27-45 | 3138 | 3128-3138 | McClosky li; Miss | P 90; 18 wtr | .... | ..... | Abt 1 mi s Clay City Consol. pool & same dist. n of Clane pool. |
| | | **INDIANA—New Gas Fields** | | | | | | | | | |
| Ripley | ..... | Seevers' Emma Schulenburg 1, sw 11-6n-12e, Brown twp | 18-10-45 | 10-29-45 | 620 | 610- 620 | ..... | F 0.02 mln | .... | ..... | ..... |
| Rush | ..... | W.S. & B.E. Tonye's Walter S. & Bessie E. Tonye's Fee 1, se sw 22-12n-9e, Anderson twp. | 9-15-45 | 10-27-45 | 897 | 890- 897 | ..... | F gas | .... | ..... | ..... |
| | | **KANSAS—New Oil Fields** | | | | | | | | | |
| Russell | ..... | Coralena Oil Co.'s Olson 1, csl se se 23-13s-15w, 1½ mi n Gorham pool | ..... | 12-16-45 | 3336 | 3249-3278 | Kansas City li; Penn | P 29 | 36 | Ant; dr | Unimportant; slight oil show in Arbuckle. |
| Pawnee | Ryan, South | Hildebrand's Wickstrom 1, nw nw nw 12-20s-16w, betw Pawnee Rock and Ryan pools. | ..... | 12-18-45 | 3780 | 3739-3748 | Arbuckle li; Camb | F 143 | 42 | Str trp; sub dr | Considered good strike; li saturated, porous; good pressure assures max fl before going on pump; est recov 8000 bbls per ac. |
| | | **KANSAS—Oil Field Extension** | | | | | | | | | |
| Barton | Merton | Phil-Han Oil Co.'s Mauler 1, sw sw sw 36-18s-15w | ..... | 12- 4-45 | 3571 | 3567-3571 | Arbuckle li; Camb | P 100 | .... | Str tr; sub dr | ¾ mi ne extension. |
| | | **KANSAS—New Gas Fields** | | | | | | | | | |
| Barber | ..... | Skelly's Bogga 1, nw nw ne 8-33s-12e, 2 mi e Medicine Lodge gas pool | ..... | 12-14-45 | 4493 | 4471-4493 | Li; Miss | F 5 mln | .... | Ant; seis sub | Further drlg may connect with Medicine Lodge gas pool to prove abt 1600 acs. |
| Barton | ..... | Black-Marshall Oil Co.'s Smith 1, nw sw 20-20s-14w, abt 6 mi ne Pawnee pool | ..... | 12-10-45 | 3644 | 3601-3605 | Arbuckle li; Camb | F 10 mln | .... | Ant; seis sub | May open imp gas area; considerable acty reptd in gen area. |
| | | **NORTH LOUISIANA—New Oil Fields** | | | | | | | | | |
| Franklin | Lamar | Atlas O & R Co.'s J. H. Baker 2, c sw se 27-16n-9e | 11-18-45 | 12-18-45 | 4940 | 4874-4879 | Tuscaloosa sd; U Cret | F 145.8 $\frac{1}{8}$" | 43.6 | ..... | East offset, Baker 1, indicated fld, but has not been completed due to sw encroachment. |
| Natchitoches | Ashland | M. T. Halbouty's C. L. Detro 1, 1-13n-8w | ..... | 12-30-45 | 3301 | 3285-3296 | Woodbine sd; Cret | F 120; $\frac{3}{4}$" | 28 | Flt; dr | Area has been drilled over and is badly fltd necessitating careful drlg. |
| | | **NORTH LOUISIANA—New Gas Field** | | | | | | | | | |
| Caddo | ..... | H. M. McBride's Texaco Co.-J. S. Jolly 1, 27-22n-15w | 6-20-45 | 12-15-45 | 2380 | ..... | ..... | F 250,000 | .... | ..... | ..... |
| | | **NORTH LOUISIANA—Oil Field Extension** | | | | | | | | | |
| Bossier | Benton | G. H. Vaughn's K. O. Padgett 1, c sw ne 1-20n-13w | 8-10-45 | 11-25-45 | 8200 | 8128-8150<br>8007-8050 | Bodcaw sd; C.V.<br>"D" sd; C.V. Jur | F 117.24; ½" | 42 | ..... | 1½ mi nw of gas-distillate prod; also 1st oil prod for area. |
| | | **SOUTH LOUISIANA—New Oil Field** | | | | | | | | | |
| Jeff. Davis | Iowa Junction | Sohio's Claudius Fontenot 1, 2067 n 668 w of sec sw 15-10s-6w | 9-23-45 | 12-27-45 | 11000 | 9691-9716 | Frio sd; Olig | F 237; ½" | 36.9 | sd; seis | Indicates important discovery, dev campaign seen. |

# New Oil and Gas Fields and New Pay Horizons Discovered in the United States in December, 1945

## Also Important Extensions to Established Fields

| COUNTY | FIELD | COMPANY, WELL AND LOCATION | Date Spudded | Date Completed | Total Depth (Feet) | Completion Horizon (Feet) | [1]Name, Character and Age of Producing Formation | [2]Initial Production Method and Choke | Gravity of Oil | [3]Structure: [4]Method of Discovery | Tentative Evaluation of Discovery or Extension (Opinion of Relative Importance of Area from General Viewpoint of the Industry Based on Pertinent but Necessarily Incomplete Data; Later Development or More Complete Data Obviously Might Require Revision of this Tentative Opinion). |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **SOUTH LOUISIANA—New Oil Pays** | | | | | | | | | |
| Acadia | Gueydan | Magnolia's Simon Est. 2,546 se of wl of 686-ac lse & 501 n of Bayou Queuede Tortue, 300 e of dry hole 1, n flk of fld. | 7-20-45 | 11-20-45 | 10843 | 10786-10800 | Sd; Miocene | F 325 $\frac{7}{64}$" | 40 | Salt sm geol | Deep oil pay on n flk, 300' below Alliance sd. |
| Assumption | Napoleonville | Shell's C. L. Triche 1, 33-12s-13e | 9-19-45 | 12-11-45 | 9763 | 9430-9478 | Sd; Miocene | F 245 $\frac{1}{8}$" | 34.8 | Probable S.D.; geol | Prod is from deeper sd; in Miocene. |
| Plaquemines | Venice | Tide Water's Buras Lev Dist 28, 1650 s&e nwc 23-21s-30e | 8-13-45 | 12-17-45 | 11716 | 11533-11545 | Mio sd; Mio | F 189; $\frac{1}{8}$" | 37.2 | S.D.; seis | Second pay below 11,000 ft. |
| St. Charles | Good Hope | Shell's Blythe Unit 2-1, 877.6 n 48° 56 mins e th 625.8 s 44° 04 mins e fr n/nwly cor 41-12s-8e. | 11-6-45 | 12-29-45 | 9396 | 9133-9140 | Sd; Mio | F 215; $\frac{1}{8}$" | 33.5 | S.D. | Deepest pay in field, regular sd at 7800. |
| | | **SOUTH LOUISIANA—New Distillate Field** | | | | | | | | | |
| Iberia | Iberia | Humble's Mayo Romero 1, start m/ely/s cor sect 2 go nely alg sel th nwly at ra 650 to len 2-12s-7e. | 10-23-45 | 12-27-45 | 11330 | 11010-11017 | Sd; Mio | F 5; $\frac{8}{64}$" | 51.2 | Same seis | Confirmation test started. |
| | | **MICHIGAN—New Oil Field** | | | | | | | | | |
| Kent | Tyrone | Byron MacCallum's Green 1, n½ sw nw 27-10n-12w, 17 mi n Walker pool. | 8-24-45 | 12-15-45 | 2380 | 2367-2375 | Traverse li; Devo | F&P 15; 10 wtr | 37 | Geology | Minor fld. |
| | | **MICHIGAN—New Gas Field** | | | | | | | | | |
| Newaygo | Goodwell, S. | Taggart Bros' Helms 1, sw sw sw 24-14n-11w, 2 mi se Goodwell fld | 11-5-45 | 12-2-45 | 1201 | 1180-1195 | Michigan stray sd; Miss | 0.06 mln | | Geology | |
| | | **MICHIGAN—New Gas Pay** | | | | | | | | | |
| Osceola | Cedar | Ashby Drilling Co.'s Boettcher 1, c nw se 28-18n-9w | 9-19-45 | 12-5-45 | 1560 | 1556-1560 | Michigan stray sd; Miss | F 0.07 mln | | | |
| | | **NEW MEXICO—New Oil Field** | | | | | | | | | |
| Lea | | W. H. Peckham's (was T. B. Brown-Olen F. Featherstone's) Watkins 1, (OWWO), c sw se 31-18s-32e, 2½ mi sw Young pool. | 9-18-45 | 12-29-45 | 4180 | 3566-3606 | Sandy li; Perm | P 16 | | Ant; geol | Abn'd twice by separate owners; pb and reworked by Peckham. Not significant disc. |
| | | **NEW MEXICO—New Oil Pay** | | | | | | | | | |
| Lea | Penrose-Skelly | Rowan Drlg. Co.-N. G. Penrose's E. M. Elliott 1-B-15, c nw ne 15-22s-37e, offsetting 3700-ft prod.; 1¾ mi nw of 6400-ft Yeso prod. | 8-21-45 | 12-8-45 | 7365 | 6445-6525 | Yeso li; Perm | F 349; 35 wtr; ¼" | | Ant; geol | Probably more productv fr 5100-ft Glorietta zone. Eliminates immediate area for Ordovician prod due to high granite top. |
| | | **OHIO—Gas Field Extension** | | | | | | | | | |
| Stark | Sandyville | Republic Steel Corp. 1, Fee, Sec. 2, Canton twp | | 12-–45 | 4698 | 4607-4696 | Clinton sd | F 1.552 mln | | | 3 mi ext of Canton pool of Sandyville fld. |
| | | **OKLAHOMA—New Oil Fields** | | | | | | | | | |
| Garfield | Hunter, S.W. | Atlantic's Schmidt 1, se se sw 25-24n-5w, 3 mi sw Hunter | | 12-19-45 | 6303 | 6140-6148 | Wilcox sd; Ord | F 210; ¼" | 42 | Ant; seis sub | Imp strike which may cover between 2 and 3 secs and presages considerable development. |
| Lincoln | Parkland | R. L. Kemp Brown 1, sw nw sw 20-16n-5e, 3 mi n Kendrick pool | | 12-9-45 | 4022 | 3375-3380 | Prue sd; Penn | F 250; 5 mln | 45 | Ant; sub dr | Substantial strike; well was dry in Miss li; Prue sd porous; expected rec around 8000 bbls per ac. |
| Logan | | Phillips pet. Co.'s Mize 1, cse se 25-18n-4w, 3 mi e lovell pool | | 12-5-45 | 4862 | 4786-4812 | Layton sd; Penn | F 987 | 38 | Ante; seis, sub | Imp; well is ½ mi n of nst prod in area & pointe to a n or ne trend. |
| Noble | Billings, W. | Deep Rock's White 1, sw ne ne 19-23n-2w, 2 mi sw Billings pool | | 12-29-45 | 4450 | 4434-4450 | Wilcox sd; Ord | F 985 | 40 | Ant; seis, sub | Imp dis; structure probable will ext n-e for abt 3 mi. |
| Pottawatomie | | Stout & Stuart's Bowles 1, nw ne ne 4-5n-3e, 3 mi se Wanette | | 12-21-45 | 2892 | 2885-2892 | Layton sd; Penn | P 30 | 38 | Probable Plunging nose; sub | Fair; Layton sd; well saturated, porous. |
| Seminole | | J. E. Crosbie, Inc's Mathis 1, se nw sw 35-6n-5e, 1¾ mi se W. Konowa pool | | 12-20-45 | 2229 | 2213-2229 | Senora sd; Penn | F & Swab 280 | 41 | Dome; seis | Fair; sml structure; sd well saturated, porous. |
| | | **OKLAHOMA—Oil Field Extension** | | | | | | | | | |
| Osage | Big Bend | A. G. Oliphant's Osage 2, sw sw sw 21-25n-3e, ½ mi w Big Bend pool | | 12-26-45 | 2855 | 2851-2855 | Layton sd; Penn | P 50 | 38 | Str tr; sub dr | Proves up abt 320 ac in pool, although structural conditions erratic and lensing w/ward. |
| | | **OKLAHOMA—New Gas Fields** | | | | | | | | | |
| Cimarron | | Stanolind's Schonwald 1, cne ne 21-3n-8ecm, 18 mi e Boise City | | 12-28-45 | 5000 | 4802-4812 | Penn sd; Penn | F 1⅓ mln | | Ant; seis | Undetermined. |
| Okfuskee | Pettinquah | Fred C. Summer's Aldridge 1, sw se ne 21-13n-7e, 6 mi n Paden pool | | 12-6-45 | 2842 | 2776-2842 | Prue sd; Penn | F 5 mln | | Ant; dr | Fair gas strike. |
| | | **EAST TEXAS BORDER COUNTIES—New Gas Field** | | | | | | | | | |
| Marion | | Stewart Co.'s Brown Est. 1, 100-ac tr, Jos. Watkins sur, 3½ mi ne Jefferson | 6-25-45 | 11-1-45 | 7200 | 6138-6210 | Dess sd; L. Cre | F 18½ mln; open | | | |
| Panola | | W. H. Mitchell's Frost Lbr. Co. 1, C. F. Hull sur | 4-30-45 | 11-9-45 | 9030 | 5995-6020 | L. Pettit li; L. Cre | F 82 mln; open | | | |
| | | **UPPER TEXAS COAST—New Oil Field** | | | | | | | | | |
| Montgomery | Willis | K. B. Knox Drlg. Co.'s J. W. Woods 1, 601.3 fr nl 830 fr el 100-ac sr, Wm. Weir sur 42 | 5-25-45 | 9-–45 | 3762 | 3755-3762 | Yegua sd; Eoc | F 12; ¼" | 27 | Fault; seis | Small area; sd section thin. |
| | | **UPPER TEXAS COAST—New Oil Pay** | | | | | | | | | |
| Galveston | Hitchcock | Stewarts' Fee 16, 660 n&e of well 14, 1320 n ne at ra fr state hiway 6990 nw at ra fr Tex City Term. RR. | 11-6-45 | 12-12-45 | 6897 | 6521-6529 | Miocene sd; Mio | F 162; $\frac{1}{8}$" | 33.7 | Same; geol | Although 1st prod, new sd has been present in other wells. Av. thickness abt 15 ft, covering approx 640 acs. |
| | | **UPPER TEXAS COAST—Distillate Field Extension** | | | | | | | | | |
| Montgomery | Willis | Motan Copr.'s R. G. McIntyre Est. 1, Willis area 70.8-ac lse, Jos Lindley sur | 10-24-45 | 12-13-45 | 4009 | 3801-3823 | Cockfield sd; Eoc | F 5; 1 mln; $\frac{1}{8}$" | 50.1 | Fault; seis | 1½ mi ne of K.B. Knox discovery. Both areas believed on upthrow side of fault. |
| | | **LOWER TEXAS COAST—New Oil Field** | | | | | | | | | |
| Kleberg | Borregas | Humble's King-Rch-Borregas 1, 39,410 fr nl 34,295 fr el Santa Gertrudis Gr, 40,591-ac lse. | 7-8-45 | 12-13-45 | 8549 | 6889-6896 | Frio sd; Olig | F 40.03; $\frac{1}{8}$" | 38 | Fault; seis | On King Ranch. May be on flnk of structure. |
| Kleberg | Monte Negra | Humble's King Rch-Monte Negra 1, 21,120 at ra fr nl 18,000 fr el Santa Gertrudis Gr, 30,439-ac lse. | 10-12-45 | 12-10-45 | 7763 | 7054-7080 | Frio sd; Olig | F 167.95; $\frac{1}{8}$" | 38 | Fault; seis | On huge King Ranch & controlled by Humble. |
| | | **LOWER TEXAS COAST—New Oil Pays** | | | | | | | | | |
| Brooks | Mariposa | Humble's D. J. Sullivan 2-C, 1980 fr sl 4320 w of m/sly/el TMRR sur 151 and 10,000-ac lse, 1800 nw Well 1-C. | 8-21-45 | 12-12-45 | 9105 | 9083-9105 | Vactisburg sd; Olig | F 128; $\frac{1}{8}$" | 38.1 | Flt; seis | Second and deeper sd. |
| Willacy | Willamar | Pan American's G. C. Kent 3, 467 fr el 1148 fr nl 494-ac lse, 1430 ne well 2, San Juan de Carricitos gr. | | 12-20-45 | 7990 | 5286-5294 | Sd; Eoc | F 79; $\frac{1}{8}$" | 35 | Anti; seis | 1st well in shallow sd. Most sd sect is gas. |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **LOWER TEXAS COAST—New Distillate Field** | | | | | | | | | | |
| Goliad | Berclair | Magnolia's R. F. Irby 1, 660 fr se swl 2471-ac lse, Jos Callahan sur | 4-14-45 | 11-27-45 | 11726 | 9900-9910 | Wilcox sd; Eoc | F 83; 11/64" | cond | Flt; seis | Thin sd sect may retard dev. |
| | | **SOUTHWEST TEXAS—New Oil Fields** | | | | | | | | | | |
| Duval | Piedras Pintas | H. H. Howell's Geo. B. Parr 1, 1320 fr el 330 fr sl sur 185, 3100 e of Tex-Mex RR, 485-ac lse. | 11-20-45 | 12-15-45 | 5595 | 3798-3804<br>3990-4010 | Yegua sd; Eoc<br>Yegua sd; Eoc | F 246; 1/4"<br>F 271; 1/4" | 44<br>49.6 | Dome; geol | On e flank of dome disc in 1905. First prod fr Catahoula at 350' & Cockfield at 3613. |
| Webb | N. Albercas | Blanco Oil Co.-Al Buchanan's A. M. Brunl Est. 1, 330 fr s&el blk 28, 4950 fr nl 5610 fe el Albercas gr, 960-ac lse. | 11-21-45 | 12- 2-45 | 2318 | 2313-2318 | Jackson sd; Eoc | P 81 | 24 | Sand Lense | N of abnd fld. 2nd test was dry. |
| | | **SOUTHWEST TEXAS—Oil Field Extension** | | | | | | | | | | |
| Starr | Rincon | Harrus Synd's M.M. Garcia 1, 330 fr wl porc 91 330 s of sl sur 917 being nl blk 26 & lse. | 11- 9-45 | 11-29-45 | 4520 | 3498-3512 | Lower Frio sd; Olig | F 123; 1/8" | 41 | Flt; seis | Second well completed. |
| | | **SOUTH CENTRAL TEXAS—New Gas Field** | | | | | | | | | | |
| Atascosa | | Humble's Henry Schorsh 1, 660 fr n&wl blk Atascosa Colony Farms sbdn, 460.5-ac lse, Edwards Estes sur. | 9-17-45 | 12-26-45 | 7405 | 7263-7300 | Edwards li; Cre | F 5 mln open; 1/8" | .... | Fault; seis | Shut in gas well; more drlg needed. |
| | | **NORTH TEXAS—New Oil Fields** | | | | | | | | | | |
| Clay | Heard | Continental's S. W. Heard 1-C, 467 ft nsl and 1400 ft EWL TE&L Co. Sec. Sec. 3222, 3 mi se of Joy multi-pay fld. | 10-23-45 | 12-28-45 | 6493 | 6468-6493 | Ellenburger dolo; Ord | F 1170; 1/2" | 41 | Ant; geop | Sml but attractive prod area, with choice of 2 pays. Top of Bend correlates 91 ft hi to 6455-ft; failure 1 mi to se. |
| Cooke | | James L. Anderson's J. T. Mooney 1, 330 ft out nec 150½-ac tr or 4300 ft. fr M/S/S/ & 2500 ft fr M/E/E li of A.C.C. Bailey sur A-44 ½ mi sw of Wilson 2300-ft fld. | 10-22-45 | 12-21-45 | 3943 | 3933-3943 | Strawn sd; Penn | P 211 | 31 | Ant; geol | Involves lenticular sd; will be erratic in performance; sml prod area. |
| Young | | A. Kriss' D. R. Willard 1, 1416 nsl 450 ewl sec 227, TE&L sur | 11- 3-45 | 11-10-45 | 994 | 991- 994 | Cisco sd; Penn | P 10 | 36 | Ant; geol | Small prod. area with nearby failures. |
| | | **NORTH TEXAS—New Oil Pays** | | | | | | | | | | |
| Cooke | Sivels Bend | Sun's Kate Allen 1, 467 nsl 400 wel 77-ac sol Gann sur, A-411 | 7-16-45 | 12- 7-45 | 7450 | 6280-6300 | Strawn sd; Penn | F 253; 3/8" | 36 | Ant; geol | Shallowest of 4 Strawn oil sds; involves lenticular pay down-dip; likely will be erratic. Field's deeper sands not prod. |
| Young | | Republic Nat. Gas Co.-Fred M. Manning's M. K. Graham 1, 1450 snl 467 ewl of e 320-ac sec. 1, J. Poitevent sur A-227. | 11-10-45 | 12- 4-45 | 3090 | 3075-3090 | Strawn sd; Penn | F 100; 1/32" | 41 | Ant; geol | Small prod. area. |
| Young | | Robertson Drlg. Co.'s N. Burch 1, 330 out nec sw¼ sec, 466, TE&L Co. sur. | 8-30-45 | 12- 1-45 | 4791 | 3794-3890 | Strawn sd; Penn | P 46 | 39.9 | Ant; geol | Nearby failure discount importance. |
| | | **WEST CENTRAL TEXAS—New Oil Field** | | | | | | | | | | |
| Fisher | | Grapeland Oil Co.'s C. F. Brooks 1, c nw nw H&TC Ry. 80, blk 1, 1¼ mi n of 3200-ft prod. | 12-17-44 | 6-15-45 | 5113 | 4973-5090 | Strawn li; Penn | Bailed 5 | .... | Ant; geol | Not rated as commercial horizon. |
| Stephens | | W. R. Skeen-R. Hatchett 1, 549 ft snl & 995 ft ewl of sw sec. 33, Orphan Asylum Lands, 1⅞ mi ne of Loving Feld (Bend li ar). | 8-23-45 | 12- 3-45 | 4228 | 4215-4218 | Ellenburger dols; Ord | F 315; 70 wtr; 3/4" | 43.6 | Ant; geol | Small productive area. |
| | | **WEST CENTRAL TEXAS—New Gas Field** | | | | | | | | | | |
| Eastland | Nimrod | Kerlyn Oil Co.-Phillips Pet. Co.'s A. E. Harrelson 1, c ne sw H&TC Ry. 101, blk. 3, 1½ mi ne of Nimrod; 2¾ mi s of prod. | ..... | 12-15-45 | 3819 | 3278-3286 | Marble Falls sd; Penn | 4 mln; open | .... | Ant; geol | Possible the forerunner of Ellenburger oil area on apex of structure. |
| | | **WEST CENTRAL TEXAS—New Oil Pays** | | | | | | | | | | |
| Jones | Swan | Rhodes Drlg. Co.'s W. D. Swann 1, 467 ft fr se and 990 ft fr sw li 80-ac lse, or 3917 ft nsl and 990 ft ewl of I. Miley sur No. 281, offsetting 2500-ft pumpers. | 11-15-45 | 12- 3-45 | 2953 | 2700-2743 | Saddle Crk. sd-li; Penn | F 1023; 1/4" | 38.5 | Ant; geol | Initial based upon 2-hr test; sml prod area. |
| Palo Pinto | Conway | W. K. Gordon's J. W. Conway 5, 1320 ft ewl 50 ft nsl T&P Ry. 50, blk 2, ⅞ mi n by w of wildcat gasser at 3969-73 ft. | 11-13-43 | 6-10-45 | 3576 | 3567-3576 | Penn. sd; Penn | F 21; 55 wtr; 3.8 mln; 2" | .... | Ant; geol | Not important due to thin pay and wtr. |
| | | **WEST TEXAS—New Oil Fields** | | | | | | | | | | |
| Howard | Fairview | Bruce C. Clardy's Fee 1, c sw sw T&P Ry. 4, blk 33, T-1-N, 6 mi ne Morita pool. | 10-15-45 | 12-19-45 | 3560 | 3100-3140 | San Andres li; Perm | P 28; 14 wtr | 28.3 | Ant; geol | Possibly large prod area, but yield per ac will be below par for San Andres. |
| Terry | Alexander | Leland Fikes-Jno. Murchison's C. R. Alexander 1, 670 snl 542 ewl PSL, sect. 18, blk K, 7 mi sw Slaughter fld. | 10- 1-44 | 1-15-45 | 5157 | 5121-5157 | San Andres li; Perm | P 98; 3 wtr | 32 | Ant; geol | No pipe line, so not produced. later dev. incl. 2 failures, 3 small pumpers. |
| | | **WEST TEXAS—New Oil Pays** | | | | | | | | | | |
| Andrews | Fullerton | Fullerton Oil Co.'s H. M. Wilson 322-A, 1988 ewl 1985 snl psl 16, blk A-32 | 7- 8-45 | 12-11-45 | 9945 | 9895-9945 | Ellenburger Dolo; Ord | F 562 1/4" | 40.6 | Ant; geol | Situated near apex of Clear Fork prod. zone Ellenburger corr. 794 ft. high to failure 1½ mi w by n, revealing steep w dip. Ext of Ellenburger prod are speculative, but trending n-s. Flow exc. 100 bbls. hrly thru chokes randing up to 2-in. |
| Pecos | White and Baker | Helmerich & Payne (Cardinal Division's) White and Baker 8-C, c ne¼, T.C. Ry. 44, blk Z, offsetting 1700-ft gassers. Worked over failure drilled by Humble in 1934. | 3-20-33 | 12-15-45 | 9811 | 7612-7628 | Penn | F 176; 11/64" | 37.9 | Ant; geol | Fair to nominal oil shows logged above and below prod. level by Humble in dr to water in Ellenburger at 9402-9811 ft. in 1934; thus providing inducement to re-work. Extent of productive area and crude yield per ac considered speculative. |
| Winkler | Wheeler | Stanolind's, Shell's Waddell 1, c se se psl 8, blk B-8, ¾ mi nw ext. | 1- 9-45 | 12- 5-45 | 10813 | 9270-9390 | Silurian li; Sil | P 141; 25 wtr | 31 | Ant; geol | More-prod-Silurian pay passed up by Ellenburger wells higher on structure, which also yields attr. fl fr Devo. for dual comp. Silurian resv. to be held back as 3rd. choice. |
| | | **WEST TEXAS Oil Field Extensions** | | | | | | | | | | |
| Andrews | S. Fullerton-Devo. | Mid-Continent University 1-15, c ne nw, sec 42, blk 13, 1¾ mi nw ext. | 4-23-45 | 12- 3-45 | 8715 | 8590-8650 | Devo. li; Devo | F 1427; 1/32" | 45 | Ant; geol | Imp. strike; top of Devo. correlates 211 ft high to fld. dis., but 225 ft low to n/st well in Fullerton-Devo. fld, situated 2⅛ mi n by e. Fl of oil thru dr-stem at 6850-6959 ft fr Clear Fork forecasts dual, or twin comp. and a new area for this zone. Single well resv. of 320,000 to 400,000 bbls. |
| Hockley | Levelland | Magnolia's W. T. Coble 1, 660 ft out of nwc Labor 34, League 68, Hardeman CSL sur, 2⅝ mi s of w edge Levelland fld & abt same producing contour. | 8-13-45 | 12-17-45 | 4951 | 4761-4867 | San Andres li; Perm | P 5; 2 wtr | 29.7 | Ant; geol | Not commercial; further explorations doubtful. |
| Upton | McCamey | Gulf's G. E. Farley 1, 660 ft ewl and 3300 ft nsl sec 12, blk 3½, CCSD&RGNG sur, 1 mi plus n of nw sector of McCamey fld. | 10-27-45 | 12-22-45 | 2358 | 2355-2358 | Grayburg li; Perm | P 142; 2 wtr | 33.7 | Ant; geol | Started as dp test, offsetting an Ord. prosp. to forestall lease expiration on 640-ac site. |

[1] Character of producing formations abbreviated thus: ch, chalk; dolo, dolomite; li, limestone; sd, sandstone; sh, shale; ser, serpentine; cgl, conglomerate. Ages of formations abbreviated thus: Pleis, Pleistocene; Plio, Pliocene; Mio, Miocene; Olig, Oligocene; Eoc, Eocene; U. Cre, Upper Cretaceous; L. Cre, Lower Cretaceous; Jur, Jurassic; Tri, Triassic; Perm, Permian; Penn, Pennsylvanian; U. Miss, Upper Mississippian; L. Miss, Lower Mississippian; Devo, Devonian; Sil, Silurian; Ord, Ordovician; Cam, Cambrian.

[2] Barrels of oil per day (24 hr. rate), flowing (F), pumping (P), swabbing (Sw), or bailing (B); or million cubic feet of gas daily open flow capacity; size of choke given in inches.

[3] Type structure abbreviated as follows: Ant, Anticline; D, Dome; Fld, Fold or Folded; Flt, Fault or Faulted; M, Monocline; N, Nose; SD, Salt Dome; Str trp, Stratigraphic trap; Syn, Syncline; Ter, Terrace.

[4] Method of discovery abbreviated as follows: cd, core drilling; dr, drilling; geol, geology; geop, geophysics; grv, gravity meter; ran dr, random drilling; seis, seismograph; sub, subsurface geology; sur, surface geology.

# Super-Expansibility of

## And Effect on Flow Through Pipe Lines

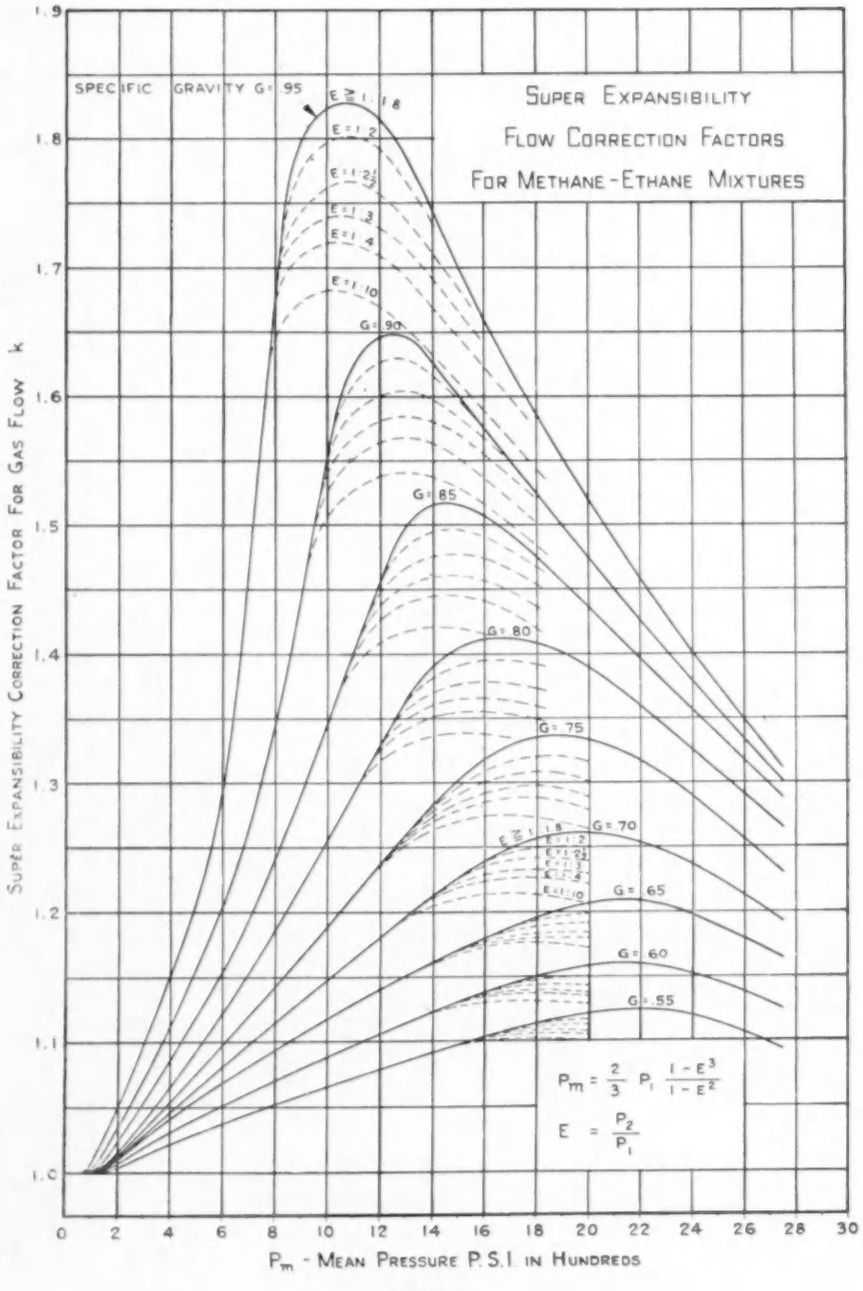


**FIGURE 1**

PIPE, representing 25 percent and upwards of the total investment in a gas transmission line and directly influencing power and installation costs, requires careful consideration in its selection. The size, weight, and grade of pipe to provide the flow rate required must be determined by suitable flow equations. The super-expansibility of mixtures of methane and ethane, which are encountered in natural gas, should be considered in solving these equations.

Most of the formulae commonly used for determining gas flow disregard super-expansibility. One of the most widely used equations is Weymouth's, which is obtained by substituting Weymouth's friction factor[1] based on pipe diameter, equation (1), into the general expression for ideal gas flow,[1] equation (2). The resulting formula[2] is shown in equation (3).

$$f = \frac{0.032}{d^{1/3}} \qquad (1)$$

$$Q_{day} = 77.544 \frac{To}{Po} \sqrt{\frac{(P_1^2 - P_2^2)d^5}{fGTL}} \qquad (2)$$

$$Q_{day} = 433.484 \frac{To}{Po} \sqrt{\frac{(P_1^2 - P_2^2)d^{16/3}}{GTL}} \qquad (3)$$

where d = inside diameter of pipe in inches
f = coefficient of friction of the gas in the pipe. Sometimes the coefficient of friction is expressed as a value of ¼ of that used here with the constant of the general flow equation modified accordingly.
G = specific gravity of the gas referred to air
L = length of line in miles
Po = standard atmospheric pressure in psi absolute
$P_1$ = entrance pressure in psi absolute
$P_2$ = exit pressure in psi absolute
$Q_{day}$ = capacity in cu. ft. per day at standard conditions
To = standard temperature in °F absolute
T = temperature of the flowing gas in °F absolute

The general flow equation (2) for ideal gas is obtained by integrating the differential equation (4) of the gas pressure gradient,[2] using the ideal gas laws defined by equation (5).

$$\frac{d(p + \gamma h)}{dx} = -\frac{f}{D}\frac{\gamma v^2}{2g} \qquad (4)$$

$$PV = NR'T \qquad (5)$$

where g = acceleration due to gravity in ft./sec. per second
h = elevation variation in feet
p = gas pressure in lb./sq. ft. absolute
x = length along line in feet
v = velocity of gas in the line in ft./sec.

# Methane-Ethane Mixtures

By W. O. CLINEDINST
National Tube Company,
Subsidiary of
U. S. Steel Corporation,
Pittsburgh

D = inside diameter of pipe in feet
N = number of lb. moles of gas $= \frac{\text{weight of gas in lb.}}{\text{molecular weight}}$
P = pressure in psi absolute
R′ = universal gas constant = 10.71 for cu. ft., psi
T = temperature in °F absolute = 460 + temperature Fahrenheit
V = volume in cu. ft.
$\gamma$ = weight density of gas in lb./cu. ft.

It is well known that natural gas, which is largely mixtures of methane and ethane, expands and compresses more readily than is indicated by the ideal gas laws. This phenomenon may be referred to as super-expansibility or super-compressibility, as the case may be. Both are of importance to the design of gas lines. Super-compressibility affects the design of compressors for field and booster stations, while super-expansibility affects the flow of gas through the pipe. Extensive studies of these deviations from ideal gas laws have been made,[4,5] and it has been found that the deviations can be approximated by a compressibility factor Z, or its reciprocal, an expansibility factor Y, introduced into equation (5) representing the ideal gas laws, resulting equation (6).

$$PV = ZNR'T = \frac{NR'T}{Y} \qquad (6)$$

where Z = compressibility factor

$$Y = \text{expansibility factor} = \frac{1}{Z}$$

### General Flow Equation

A flow equation taking into consideration the effect of super-expansibility has been obtained by the writer[3] by integrating the pressure gradient differential equation (4), using equation (6) rather than equation (5) to represent the gas laws. The result is the general flow equation (7) following:

$$Q_{day} = 109.6622 \frac{To}{YoPo} \sqrt{\frac{d^5 \int_{P_2}^{P_1} PY dp}{fGTL}} \qquad (7)$$

where Yo = expansibility factor at standard atmospheric pressure and temperature; which is approximately unity and may be eliminated from the equation.

Curves of the integral appearing in equation (7) have been prepared by the author[3] by means of numerical integration. These are expressed in terms of the critical pressure and temperature for general application to gas. While the integral curves are not difficult to use, considerable effort can be saved in the case of methane-ethane mixtures commonly encountered in natural gas by correction factors applied to the usual ideal gas flow equations, such as Weymouth's. Dividing equation (7) by equation (2), equation (8) is obtained representing the multiplying correction factor to be applied to ideal gas flow equations:

$$k = \sqrt{\frac{2 \int_{P_2}^{P_1} PY dp}{P_1^2 - P_2^2}} \qquad (8)$$

where k = super-expansibility flow correction factor.

From equation (8) and the pressure

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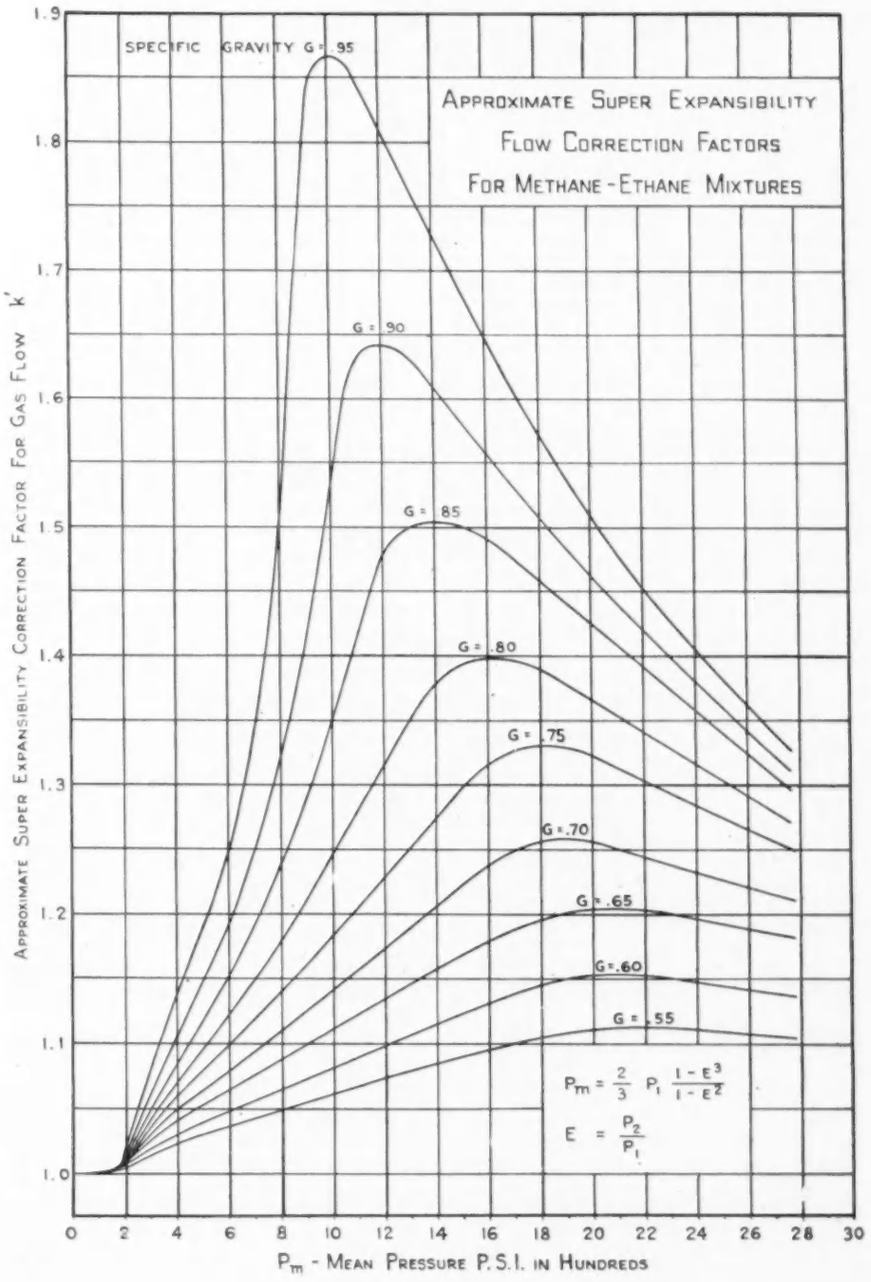


FIGURE 2

# Should PRICE CONTROL Be Retained?

## Brookings Institution Sees Danger Of Inflation in Rapid Pay Increases

THE question of price control is among the most important facing the nation. Strikers pressing for higher wages in most of our basic industries have brought government, industry, and labor to a deadlock that is widespread and threatens to grow. The fundamental point of difference is whether wages can possibly be raised without a corresponding increase in the price of manufactured products.

Government inclines to the view that take-home pay can be upped, with industry absorbing the cost of such raises. Restraint in further rise in the cost of living is the theme of government argument, and all spokesmen of the government usually get back to this point in any discussion of price control.

It was to shed as much light as possible on the real situation regarding the danger of inflation that The Brookings Institution, Washington, D. C., made a survey recently. The results of the investigation have been published under the title "Should Price Control Be Retained?" Harold G. Moulton and Karl T. Schlotterbeck are the authors. The Brookings Institution is devoted to public service through research and training in the social sciences. Responsibility for the final determination of the Institution's policies, its work program, and the administration of its endowment is vested in a self-perpetuating board of trustees. It is the function of the trustees to make possible the conduct of scientific research under the most favorable conditions, and to safeguard the independence of the research staff in the pursuit of their studies and in the publication of the results of such studies.

### Conclusions of Study

The study of price control was based on two principal criteria: Will the continuation of price control promote or retard the rapid resumption of business activity and employment? Can the controls be readily administered and enforced? The summary and conclusions of the study are presented in detail, as follows:

"The inflation outlook as a whole appears to involve some restraining factors and some danger tendencies.

"The favorable elements in the situation are as follows: Agricultural production and supply are, or shortly will be, so large in all except a few lines that extensive price declines will occur—unless prices are artificially supported at present levels. A fall to the present legal support level of 90 percent of parity would mean a drop of approximately 20 percent.

"Mineral raw materials, with few exceptions, will be abundant. Supplies on hand, plus potential production, are adequate to meet any prospective demands.

"With large supplies of raw materials available the danger of inventory speculation is slight. All that is required is to make public at frequent intervals full information as to the supply situation. The government is also in position to check any speculative tendency by releasing some of its own accumulated supplies.

"With abundant food supplies in prospect, there would seem to be little reason for food profiteering. Again the government is in position to check speculative buying by releasing government supplies. The supply and price situation in foodstuffs is of course of primary importance from the standpoint of the cost of living.

"Industrial capacity in general is large enough to permit production schedules very much above the levels of 1940-41. Supplies of a wide range of semi-finished and finished products can thus be increased very rapidly. In most lines there would appear to be no occasion for consumer scrambling for short supplies."

On the question of abundance of purchasing power, the survey's findings make good sense throughout, and are backed up by the attitude of many with ready cash. "An abundance of purchasing power, of course, makes price advances possible; for without it the goods could not be sold. But the cases are rare in which consumers may be said to compete with one another for the available goods thereby bidding up prices. Consumer goods, generally speaking are not sold at public auction. Most commodities which individuals buy are marketed through retail establishments, with the sales prices determined well in advance and marked on the products. When the items desired are not available, consumers usually do not search for others on which to spend their last cent. Nor do they like to be 'gouged'; when they believe prices are too high or have risen too rapidly, they go without rather than pay what are regarded as exorbitant prices. The most that can be said is that abundant consumer purchasing power is a permissive inflationary factor and may be an invitation to profiteering.

### Danger Spots

"The principal danger spots are as follows: There are acute shortages in the durable goods field which might encourage profiteering. This situation, however, is safeguarded by the fact that as much as 80 percent of the production is in the hands of some 20 companies, which are subject to strong competition and which have long had low-price policies.

"There is a powerful movement for higher wage rates. If wage rates generally are increased with a view to maintaining wartime purchasing power after work schedules have been reduced, costs would be increased pretty much all along the line in the field of industrial production. Or if they are increased in special lines, a whole series of readjustments in the interrelated cost and price structure will become necessary. The major inflationary danger at the present time lies in the possibility of rapid wage advances.

In summary, this analysis has established the following points:

"1. The rapid advance in prices in 1919-20 was rooted in the fear of shortages of raw materials and foodstuffs, which led to speculative buying and inventory accumulation on a vast scale. In the acute stage, we had the familiar spiral of rising prices, rising costs, and again rising prices. Consumer goods prices rose less than the price of producer goods, and we eventually had a consumers' strike against the high cost of living.

"2. Today we are faced with surpluses rather than shortages of most raw materials and food products. With the information as to supplies now available, business men have little reason to engage in speculative buying of raw material inventories. Moreover, the government is in a position to check inven-

tory speculation, whether in foodstuffs or raw materials, by releasing supplies now controlled by the Services and the Surplus Property Board.

"3. The acute shortages are confined chiefly to the field of durable consumer goods, where 80 percent of the production is accounted for by 20 companies which have consistently exemplified the principle of mass production, low unit costs, and low prices to consumers.

"4. War experience in this and other countries has demonstrated that the control of wage rates, the most important element in costs, is indispensable to price stabilization. In the light of the newly announced policy of relaxing wage controls and increasing wage rates in order to sustain purchasing power, firm control over costs, and hence over prices, has been surrendered.

"5. The transition from war to peace affects the cost-price situation quite differently in the various divisions of industry. Accordingly, the whole price structure has to be reviewed. Moreover, since rising costs in any particular industry will affect costs in related industries, continuous review and readjustment of prices is necessary to meet the needs of a rapidly changing situation. The time required for any administrative agency to make wise and equitable price readjustments is so great that the expansion of production and employment would be seriously impeded.

### OPA Handicap

"6. Without effective control over wage costs, all that the OPA can hope to accomplish is to retard price advances by delays in granting price relief or by applying 'the squeeze' somewhere along the line.

"7. The announced policy of requiring distributors to absorb increased costs at the manufacturing level greatly magnifies the problem of price control at the retail end. War experience indicates that rationing is essential to the control of retail prices in lines where there is acute shortages. But it is apparently recognized that a rationing system for durable consumer goods in peacetime would not be tolerated.

"8. The principal argument advanced for the continuation of price control is that it is necessary to prevent the excess purchasing power from pulling up prices where shortages exist. We have shown that if the price stabilization program were successful, the excess purchasing power would not have disappeared; hence it would be necessary to continue the price control indefinitely. Similarly, we have shown that if prices are adjusted upward because of wage or other cost increases, there is no foreseeable stopping place; price control would have to be retained as long as inflationary pressures from the cost side existed.

"In the light of this analysis we reach the conclusion that, beyond the setting of initial prices for products whose manufacture were suspended during the war, the continuation of price control is impracticable. Without wage stabilization and without rationing, the OPA is not in any case in a position to hold the price line. And the process of continuously reviewing and readjusting a multitude of prices to meet the needs of a rapidly changing situation would be so time-consuming that the expansion of production and employment would inevitably be retarded.'

## Super-Expansibility of Methane-Ethane Mixtures

■ CONTINUED FROM PAGE 47

integral curves referred to, curves of the super-expansibility correction factor k for methane-ethane mixtures for various specific gravities at 60° F. have been calculated and are shown in Figure 1. These curves have been plotted against the mean pressure in the line based on the ideal gas flow pressure gradient shown in equation (9):

$$Pm = \frac{2}{3} \; P_1 \frac{1 - E^3}{1 - E^2} \qquad (9)$$

where Pm = mean line pressure based on ideal gas law pressure gradient in psi absolute

E = expansion ratio during flow $= \frac{P_2}{P_1}$

The correction factor k of Figure 1 can be used as a multiplying factor to correct ideal gas flow formulae for super-expansibility of methane-ethane mixtures.

Examining equation (8), it is seen that the integral can be evaluated approximately by using a constant value of Y corresponding to mean line pressure Pm determined by equation (9). Such approximate interpretation results in equation (10):

$$k' = \sqrt{Ym} \qquad (10)$$

where k' = appropriate super-expansibility flow correction factor

Ym = expansibility factor corresponding to mean pressure in line

The curves of Figure 2 show the approximate correction factor obtained by means of equation (10) for gas flowing at a temperature of 60° F.

Comparing the super-expansibility flow factor of Figure 1 with the approximate ones of Figure 2, it is seen that the approximate factors are somewhat higher. Also, it is to be observed that for certain pressure ranges the factors of Figure 1 are affected by expansion ratio, whereas the approximate factors of Figure 2 are not.

### Typical Conditions

Consider the magnitude of the super-expansibility effect on a typical set of flow conditions. Assume a natural gas composed largely of methane and ethane, having a specific gravity of .65, with a working pressure of 1000 psi absolute, and expansion rates of 1:2.

Determining Pm from equation (9):

$$Pm = \frac{2}{3} (1000) \frac{1 - \left(\frac{1}{2}\right)^3}{1 - \left(\frac{1}{2}\right)^2} = 777.8$$

From Figure 1 for the specific gravity of .65 and mean line pressure of 777.8 psi absolute, the super-expansibility correction factor is 1.09. The capacity of the line is then obtained by multiplying the capacity for ideal gas by Weymouth's or other suitable equation by this factor.

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## Mines Bureau Reports New Drop in Crude Production

Domestic crude production fell off by 613,000 barrels a day between July and October, it was disclosed by the Bureau of Mines January 7 in reporting daily average output in the latter month as 4,277,000 barrels, 136,000 barrels below September.

Small gains in many states failed to catch up with declines of 106,000 barrels in Texas, 39,000 barrels in California and 15,000 barrels in Oklahoma between September and October.

Daily average demand for domestic crude was 4,213,800 barrels, a decline of 19,300 barrels from the preceding month, permitting additions to stocks at the rate of 63,500 barrels daily and bringing crude stocks, domestic and foreign, to 225,852,000 barrels October 31, compared with a revised total of 224,756,000 barrels September 30.

Reported were crude runs to stills of 4,244,000 barrels daily in October, 31,000 barrels under the September average. Both months were reduced by shutdowns resulting from strikes which would necessitate higher than normal operations in November and December.

"The apparent effect of the shutdowns has been to reduce the seasonal build-up of fuel oil and kerosine stocks at refineries and to deplete stocks in military custody and in distributors hands," the bureau commented. "The total demand for motor fuel amounted to 69,000,000 barrels in September and declined to 58,200,000 barrels in October; demand in September was inflated by the liquidation of aviation gasoline contracts and consequent transfers to military custody."

The bureau's "balance sheet" for October, showed total crude production of 132,597,000 barrels against 132,386,000 barrels in September; natural gasoline, 9,027,000 barrels against 8,329,000 barrels, and benzol, 240,000 barrels, unchanged; a total production of 141,864,000 barrels against 140,955,000 barrels. Crude imports were 7,347,000 barrels against 5,517,000 barrels, and refined imports 2,941,000 barrels against 1,674,000 barrels; making total new supply, all oils, 152,152,000 barrels against 148,146,000 barrels.

Demand included exports of 3,603,000 barrels of crude, against 3,166,000 barrels in September, and 7,070,000 barrels of refined products against 8,254,000 barrels, with domestic demand as follows: Motor fuel, 55,743,000 barrels against 64,550,000 barrels; kerosine, 6,775,000 barrels against 5,254,000 barrels; distillate fuel oil, 16,546,000 barrels against 14,297,000 barrels; lubricating oil, 2,577,000 barrels against 2,327,000 barrels; wax, 163,000 barrels against 138,000 barrels; coke, 624,000 barrels against 659,000 barrels; asphalt 3,595,000 barrels against 4,010,000 barrels; road oil, 343,000 barrels against 377,000 barrels; still gas, 7,006,000 barrels against 7,319,000 barrels; and miscellaneous, 2,744,000 barrels against 2,428,000 barrels. Losses were 1,717,000 barrels against 445,000 barrels.

Stocks at the close of the month included 221,246,000 barrels of gasoline-bearing crude against 220,319,000 barrels September 30; 4,606,006 barrels of heavy crude in California against 4,437,000 barrels; 3,959,000 barrels of natural gasoline against 3,985,000 barrels, and 233,062,000 barrels of refined products against 231,143,000 barrels; a total, all oils, of 462,873,000 barrels against 459,884,000 barrels, or 96 days' supply against 93 days.

The Bureau of Labor Statistics price index for crude and products was 62.1 for october against 62.6 for September and 63.8 for October, 1944. The crude capacity represented in the report was 5,031,000 barrels, indicating an operating ratio of 84 percent against 94 percent in October, 1944.

# Strike Legislation Needed To Guard Public Welfare

By A. R. McTEE, Staff Writer

LAST week in Los Angeles, there was violence in the picket lines of a strike when officers of the law enforced a court injunction against picketing. The order of the court had to be respected, the law said. The pickets resisted and consequently had to be strong-armed. Week before last, millions of telephones in the country stopped ringing because operators were off their jobs, not because they were dissatisfied with their pay, but because they sympathized with other strikers, and refused to carry on. Still a few weeks further back, buses were standing still in several states, while GI's sweated it out on both sides of the nation because they couldn't get transportation home. There wasn't anything to ride in. Still further back, several months ago, the gasoline supply of the country was seriously threatened when workers at refineries struck. It looked as if motor transportation would be brought to a standstill until the Navy took over and got the plants back into production of motor fuel. Striking still closer to the average citizen is the meat packer's strike which threatens to cut off a fundamental item of food from the nation's table or set up an insidious black market.

Worse than ever, today 1300 steel plants in 29 states have their fires banked. The plants are closed down, picketed, in the greatest single strike in the history of the nation. A "national disaster," says a high governmental official. And that is just what it is. Unless the deadlock is soon resolved, a big proportion of the nation's factories will be faced with closing down because they will be unable to get steel. All heavy industry will be paralyzed within a short time. Allied industries will also soon be affected, and if the supply of steel is cut off for any length of time, the whole industrial life of the nation will be in serious jeopardy. Unemployment figures will reach staggering totals and reconversion will stop cold.

### Millions Affected

If this deplorable condition is aggravated, soon millions of our people will be directly affected by the strike, affected in such a manner that even the normal routine of living will be thrown into confusion. Those immediately involved are the unemployed and their families, a figure well beyond a million people right now.

Altruism seems to have been completely lost sight of in the present stage of development in the "labor-capital" movement. It has now become a matter of one group presenting an ultimatum to the other group, supported by threat of a strike if the demands are not granted. Conciliation, mediation, arbitration, the reasonable, normal, logical, methods of settling disputes under government direction have become so farcial that there seems little hope of using them to accomplish desired results. Instead, these last-resort measures have become weapons to force the opposing group to yield.

Let us take the refinery strike as an example. Through an examination of it, we can get a reasonably clear picture of the whole strike situation. The issue there is the same as that causing the strikes throughout industry: Demand for a wage increase which is felt to be unjustifiable unless the increase can be compensated for by some increase in the price of finished products.

Between September 16 and September 27, strikes resulted in the shut-down of 27 refineries that supply more than 1,200,000 barrels daily of refined petroleum products.

### Nation-Wide Negotiation

The principal issue was the demand for 52 hours' pay for 40 hours' work. The demand was made when many companies were discussing adjustments to be made on returning from the wartime schedule of 48 hours a week to a peacetime schedule of 40 hours a week. Conversations were in progress with accredited bargaining units. Out of a clear sky, the Oil Workers International Union, CIO, demanded a 30 percent increase in rates of pay.

An extremely important issue related to industry-wide negotiation. The OWIU hoped, through its wage demands, to acquire control over all workers in the oil industry. Its aim was to negotiate one national contract for all workers. Another important demand was for closed union shop agreements which would require that every worker become a member of the OWIU, leaving no freedom whatever as to union membership.

There were other demands such as shift differentials providing higher pay for the second and third shift that are required in order to maintain continuous operations at refineries; extra holidays; and longer vacations. These demands in the aggregate would add considerably to the labor cost of industry.

Arguments advanced by the OWIU in support of its strike do not tally with facts prevailing at the time the strike was called. For instance, it was publicly announced by OWIU leaders that the unions were forced to strike because the companies would not negotiate. Actually the companies were engaged in negotiations with representatives of their employes. *Several union representatives advised that they were not free to negotiate on the demand of a 30 percent increase in wage rates,* whereas companies had indicated that they were willing to grant a 15 percent increase and to discuss the matter further. Actually, a number of companies had already given 15 percent raises.

Hours of work should be shortened to provide more jobs, the OWIU contended. The petroleum industry adopted the 48-hour work week during the war in order to supply the necessary volume of products with the available labor. Oil companies had already proposed to shorten the length of the work week so that they might provide for returning veterans.

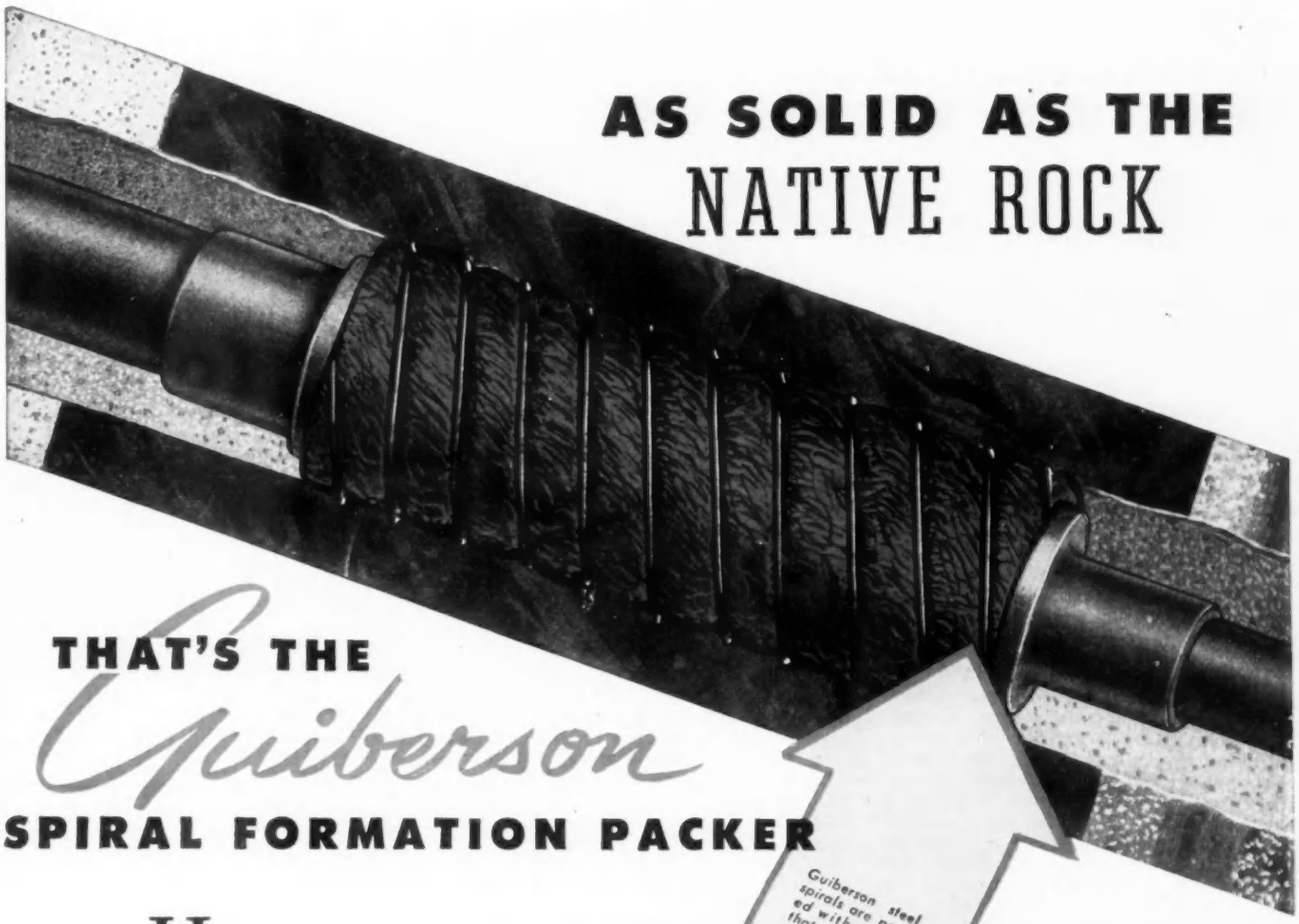
### Companies' Offer

The higher cost of living demanded increased wages, according to the union. The proposed increase of 15 percent offered by the oil companies would have resulted in larger purchasing power for the same amount of labor. A return to the 40-hour week would have provided more jobs and a larger total payroll. Earnings of individual workers would have been reduced by only 11.5 percent under the proposal of the companies, whereas hours of work would have been reduced by 16.7 percent.

The petroleum industry, and other businesses, can afford to pay higher wages without affecting profits or raising prices it is being proclaimed by Washington. To any experienced, thinking businessman, it is obvious that higher wage payments to labor must ultimately result either in higher prices or in lower returns on invested capital. If the unions wished to imply that workers were prepared to do the equivalent of 48 hours work in 40 hours time, so that the additional productivity would justify the wages asked for, then industry could not have provided more employment. As a matter of fact, productivity in the petroleum industry has not increased to any great extent for the same volume of operation.

The OWIU argued that wages are only a small part of the petroleum industry costs and that wages could be doubled without affecting production costs. Common sense tells anybody that wages directly and indirectly are a major part of the cost of any industry. Petroleum refining, which was directly affected by the strike has a direct labor cost of 30 to 40 percent of total expenses, according to figures compiled by the Bureau of Census for the year 1939. In addition, substantial labor costs are involved in the raw materials, chemicals, and other products and materials purchased by refiners. Labor costs for the entire petroleum industry are generally two or three times the amount of net earnings.

Of the fundamental issues involved, the most far-reaching one is of eco-



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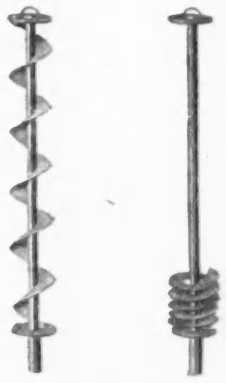

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nomics. Business is, and has always been just as much in favor of high wages and large purchasing power as labor, since its earnings depend upon the volume of sales. As a matter of economic law however, business cannot escape the fact that costs must be reflected in prices.

### Higher Than Average

Reasonableness of pay has to be considered by industry as a matter of sound business policy. Refinery workers are among the highest paid in the nation, receiving $59.80 a week for 47.5 hours of work, according to the Bureau of Labor statistics. This results in net earnings higher than the average for all manufacturing industries by 20 cents an hour.

Industry is faced with the task of providing jobs for returning veterans, at least 8 million of them. In addition almost that same number of workers were released from war work and must be absorbed in peacetime production. Large volume of goods at reasonable prices are industry's hope to achieve reconversion and provide full employment. Higher wage rates which are reflected in higher prices may reduce production and employment.

### Contract Violations Charged

The legal issues involved in the refinery strike, and all the others now in progress, seem to be clear, but little recognized by the unions. U. S. Steel states that the steel strike violates its contract with the union; the union head says that this is not so. The legal departments of oil companies say that the refinery strike definitely violated the Smith-Connally act, which provides for a cooling-off period of 30 days after notice is given of intention to strike. Furthermore, the strike violated existing bargaining contracts in that the contracts provide that there shall be no strikes or lockouts.

Oil companies were willing to negotiate the issues involved, but the union was determined to force acceptance of all its demands by the use of force and coercion. There was no immediate problem which provided any semblance or justification for the strikes, since it would have been weeks and probably months before the industry generally could have returned to a 40-hour week. Only a very small number of workers at government-owned plants shut down on instructions of government agencies were affected by shorter hours or loss of jobs. Almost without exception, the refineries involved in the strikes were continuing a 48-hour week in the course of their negotiations as *to changes that would be made in pay when a 40-hour week was adopted.*

Another important legal issue relates to the efforts of OWIU to assert authority over all workers even though it represented only a small minority. Under terms of the National Labor Relations Act, employes are to be free to determine their own bargaining agency. Under this provision many bargaining agencies have been designated at individual refineries. It is quite common for a number of different bargaining agencies to have contracts at one refinery for different groups of workers. These workers have expressed a personal preference to join particular unions of their choice. Demands of OWIU amounted to an arrogant proposal to cancel the contracts and rights of all existing bargaining agencies and to place itself in control of all workers in the industry. By its own statement, OWIU has but 50,000 members, which is not more than 25 percent of the workers in refineries and less than 10 percent of all the workers in the oil industry. To grant the demands of the union for a nation-wide contract would deprive all employes of freedom of choice as to their bargaining agency, and only emphasizes the awful travesty taking place in the United States today, as far as freedom is concerned.

### Public Concern Uppermost

On the surface the whole strike situation may appear to involve only industry and labor. There is considerable evidence that the average citizen does not comprehend the meaning of what is going on. Actually the most vital concern in the controversy is that of the public. It would be the path of least resistance for industry to accept the arrogant demands of unions and pass the cost on to the public. Industry generally has the responsibility to represent the interest of the consumer, even though this premise is now ridiculed by commentators, experts in economics and government, and others who have a soft heart for labor, but who have actually never done anything of direct benefit to labor.

As must become obvious before long, unions are actually carrynig on a hold-up of the public and demanding that it give in to their display of force and accept their demands without question. This is an intolerable abuse of the strike weapon and an affront to the public welfare. If the public does not support the stand which industry is taking, both industry and the public will forever more be at the mercy of irresponsible union forces.

It is inevitable that greatly increased wage rates at this time will start a spiral of higher prices that will destroy the value of savings and wages. The fundamental issue becomes clearer each day, with each strike. *It is whether a small minority shall coerce the government and set itself up as being stronger than the public.* If the public and the government give way to the present threat of force, there will be no stopping of the inflationary forces that will then be set loose. Furthermore, unions will then use their great power ruthlessly without regard to the public interest. The threat to our democratic processes is so serious that the public must stand firm and demand a settlement in the public interest.

### Legislative Remedies

Legislation to control strikes and regulate the power of unions is definitely needed. The charge that there is a malicious conspiracy within industry to destroy unions is too ridiculous to warrant discussion, and is an effort to distract public attention from the main issue. It should be obvious to the most disinterested or unthinking person that the power of any minority to bring our economy to a state of paralysis has to be dealt with by law. The power of such a minority has to be broken. In the public interest, such a minority must be controlled if national security is to prevail.

Up to now, the two measures being considered by Congress are the Norton-Ellender labor fact-finding bill, and the Burton, Ball and Hatch bill. Both measures have some provisions that might alleviate the strike problem, but in the opinion of people who have made a close study of them, neither bill handles strikes adequately. In the public interest, it is necessary to prevent nation-wide strikes in certain industries. We are daily witnessing industry being forced by the government to grant additional concessions to unions. Whether these concessions are just or unjust is beside the point; what should be prevented is the kind of force now possible. By concerted, collusive action—conspiracy actually, industry after industry is being confronted with ultimatums demanding higher wages. By intimidation and coercion, employes who have no bona fide labor disputes with their employers are being prevented from producing and delivering products necessary to the public welfare.

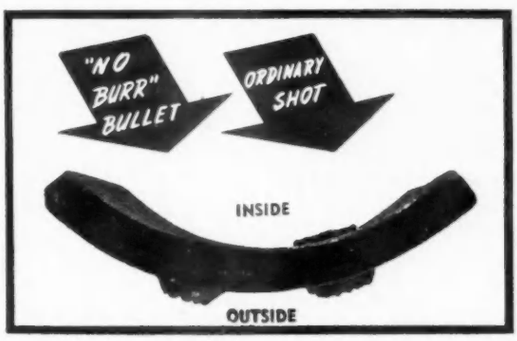
What should be done is to prevent industry-wide, nation-wide strikes, and to break the power of national or international unions to call or carry out industry-wide or nation-wide strikes against the public interest. This power should be curtailed even though there might be a wage difficulty or other labor dispute between each company or unit in the industry and the bargaining agency representing its employes. What should be stopped is concerted actions of employes and unions leading to industry-wide and nation-wide strikes without curtailing the rights of employes or a single employer to strike where bona fide labor disputes exist.

Present conditions are forcing the public mind more and more to the conclusion that it is desirable to prohibit strikes against more than one employer simultaneously brought about or carried out as a result of agreement, conspiracy, understanding or as a result of concerted action representing one or more of such employe groups. It may be entirely justifiable for employes of a single employer who have a bona fide labor disagreement to strike against that employer. At the same time, it should be unlawful for employes of more than one company to bring about or join in a strike simultaneously against two or more companies as a result of concerted action, agreement or conspiracy between the employes of these separate companies or labor unions or locals representing the employes of these companies. Stated more specifically, while it might be lawful for employes of "A" Company to strike, or for those of "B" Company to strike or for those of "C" Company to strike, it should be unlawful for the employes of two or more of the companies to agree with each other, or for labor organizations representing one or more groups of such employes to conspire or agree with each other to bring about or carry out simultaneously strikes against "A" Company, "B" Company and "C" Company, or any two of them.

Collective bargaining is a well established principle in industry, and was used long before the National Labor Relations Act was passed. Bargaining between the men in individual plants and the local management provided a sound basis for agreement, because the men knew and trusted each other. Illegal strikes constitute a blow at the principles of collective bargaining. The public is bound to realize the dangers involved when the great power of labor is used without any sense of moral or public responsibility. It cannot continue to tolerate for long such irresponsible action. Union leadership has proved its lack of public responsibility. Legislation to control the power of labor and impose definite responsibility on unions has become a necessity. The public should demand it.

## Small Item With a Big Future

Out of the Schlumberger research laboratory has come this improved bullet to solve, at long last, the problem of steel burrs turned up on the inner wall of the oil string when it is gun perforated. We call it the "No-Burr" bullet. It consists of a standard Schlumberger bullet, over the nose of which is attached a soft metal cap. When the bullet is fired the cap travels with it and contacts the casing with sufficient impact to prevent the forming of a burr. Consequently, casing perforated with Schlumberger "No-Burr" bullets offers no obstructions to close-fitting packers or other bottom hole completion equipment. A glance below at the un-retouched photograph of a section of perforated casing tells the story. Henceforth, "No-Burr" bullets will be used exclusively on Schlumberger gun perforating operations . . . another *first* for Precision Gun Perforating. *Schlumberger Well Surveying Corporation, Houston, Texas.*



# SCHLUMBERGER "NO-BURR" BULLETS

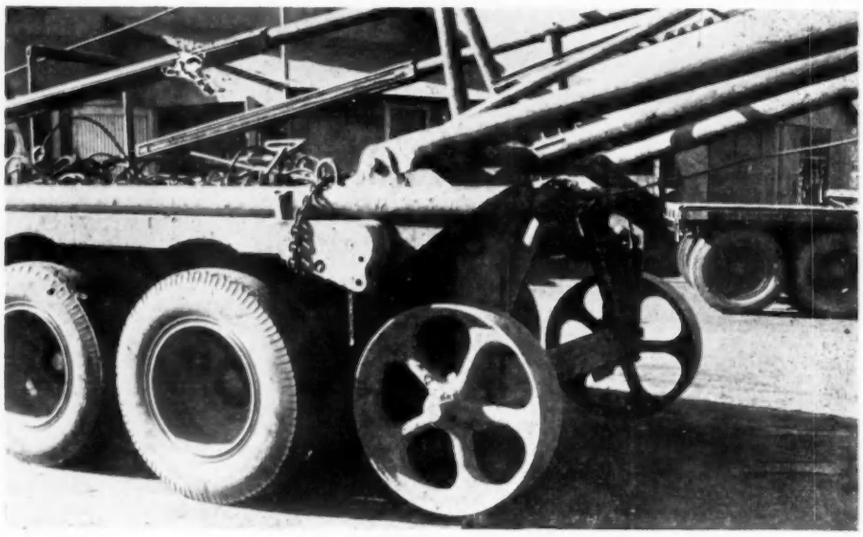
## DRILLING HINTS

### Auxiliary Wheels Clear Highway but Divide Load Over Soft Terrain

Unitization of drilling equipment into increasingly heavier units has taxed even the great lifting capacity of oil-field boom-equipped, dual-tandem wheeled heavy duty trucks. One company noted for its progress in unitization of equipment uses for extremely heavy loads a truck equipped with a pair of steel, flat tread overload wheels. Slung beneath the end of the boom base some foot or two behind the truck bed, this rigidly mounted pair of wheels is suspended a few inches above the ground level, as shown.

**EQUIPMENT SUPPORT**

In loose soil or mud, typical of conditions about the average drilling site, the overload wheels are of particular value. As the truck tires sink under pick-up of the load, the wide flat treads of the auxiliary wheels begin to support the load, stabilizing the truck and at the same time making it easier later for the truck to extricate itself upon completion of the job. The wheels save considerable on truck upkeep, particularly in springs, shackles and tires. Highway travel is not affected by the installation.



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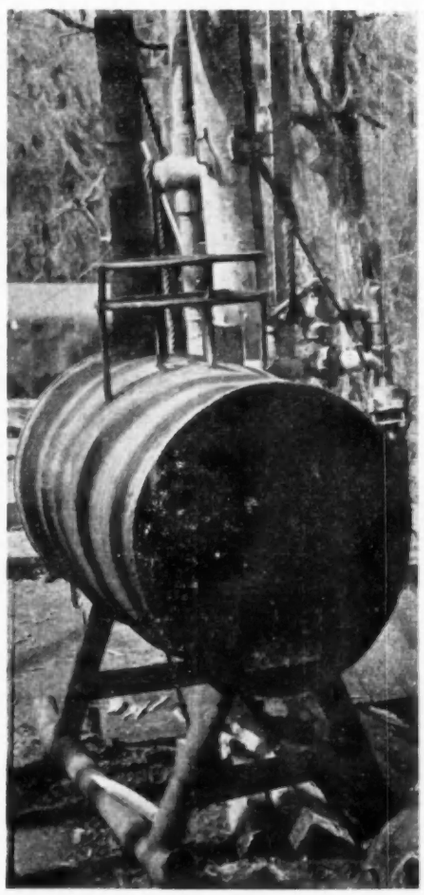
When the weather becomes cool enough for some sort of heat to be desirable for the driller and crewmen in the leanto shelter, it is probable that the flow of lubricating oil is also slowed down, and the filling of cups and other feeding devices is proionged. One drilling contractor, powering his rigs with internal combustion engines, equips each rig floor with a stove, fashioned from a salvaged oil drum, in which is a burner utilizing whatever fuel is furnished for the rig power.

**OIL CAN HEATER**

Atop the drum, and far enough from the short stack to prevent accidental contact, is welded a rack or stand, large enough to take a 5-gallon can. Within the circle formed by the rack is set a can, full of lubricant, the can bottom contacting the drum along a narrow strip, but being close enough to absorb heat readily across most of the bottom.

The heat applied to the can is not enough to cause charring, but does effectively raise the temperature of the oil within, speeding up the pouring through the small funnels necessary to fill the various drip cups on the power equipment.

Between the times when the lubricant is being heated, the welded circle doubles as a guard to prevent vibration from dislodging the coffee pot, placed on the stove to keep warm between brewings.



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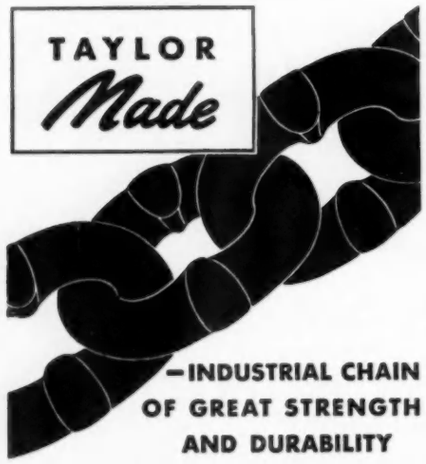

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## DRILLING HINTS

### Removable Railings Prevent Damage On the Move

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The preservation of rig steps and hand rails is gaining wide support from safety men and through them the drilling superintendents. One contractor, in order to facilitate transportation and prevent damage, dismantles the railing from the stairs when the rig is being moved from one location an another. This is accomplished by cutting off the bottom of the 1½-inch posts and placing them in 2-inch nipples which are then welded to the channel iron supporting the steps.

After the posts are fitted into the 2-inch nipples, a hole is burned through all four walls of the pipes to permit the insertion of a ½-inch bolt. When the nut is pulled down on the bolts of each leg, the railing is strong and rigid. When the rig is to be moved, the bolts are removed and the railings placed on the stairs and loaded on the truck where they will not be damaged.

Such precautions taken around the rig not only add to the appearance but also make for better housekeeping.

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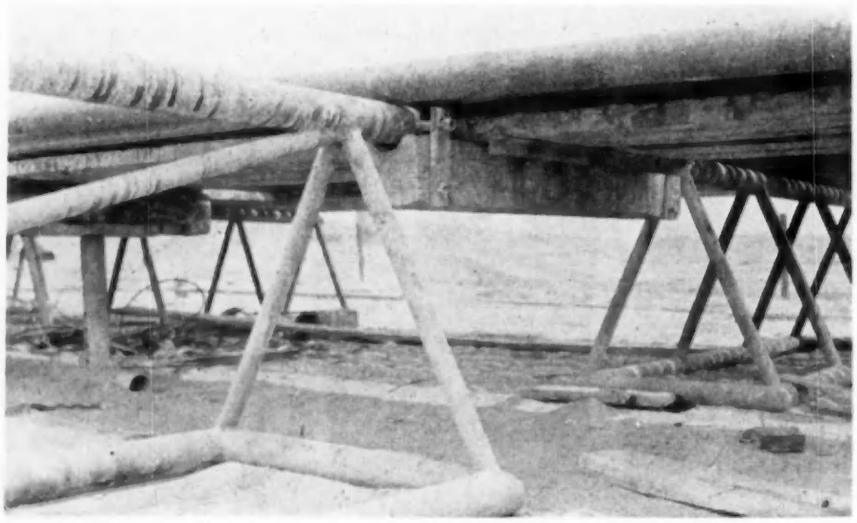
Planks are held together with strips of angle iron laid athwart them at several points along their length. To prevent lengthwise shifting of the walkway, these strips were placed at or near the timber cross-members in the manner illustrated. Installation of these supports and laying of the unitized walkways consumes little rigging-up time and the resulting assembly is both sturdy and dependable.



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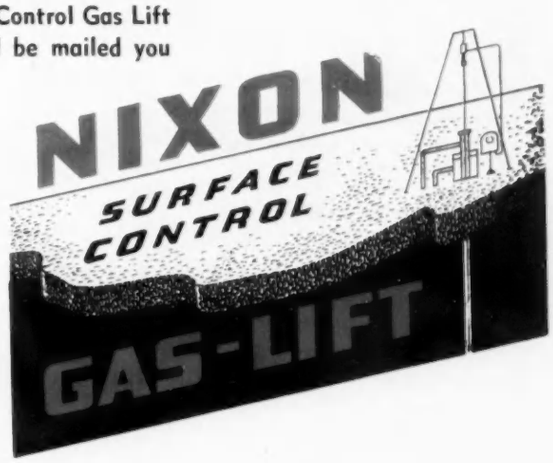


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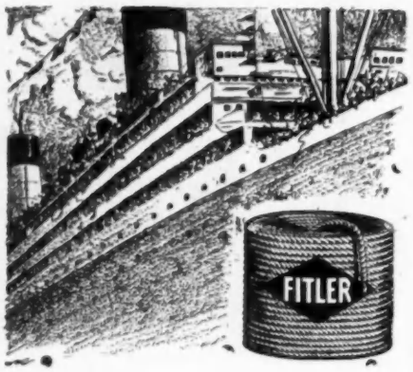


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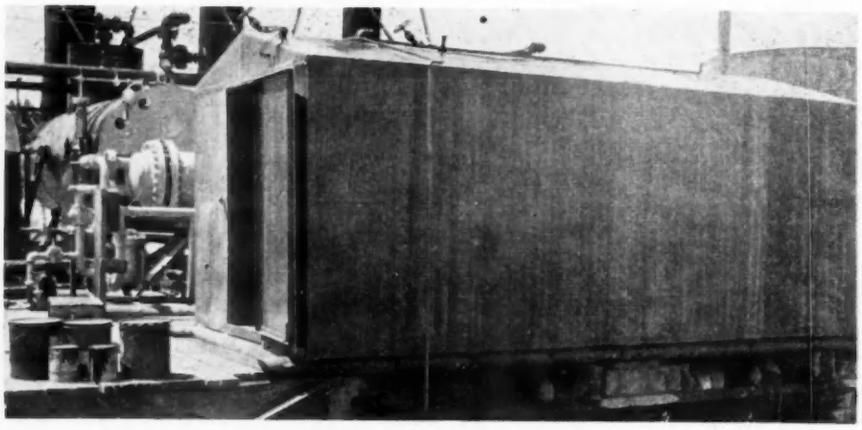
## Spray System Provides Temperature Control in House

**CREW COMFORT**

In order to reduce abnormally high temperatures inside the unitized, all steel boiler and change house during hot summer months, the superintendent of one drilling company devised a sprinkling system which plays a spray of water over the roof and sides of the building. A system of piping was so arranged that a single length of light piping having two ordinary lawn sprinkler heads installed in it could be laid along the peak of the roof. Pressure is regulated so that a two- or three-foot throw of water is obtained on either side of the roof. Run-off from the roof is sufficient to keep the sides cooled also. The overall lowering of temperature has been well worth the slight additional cost of water consumed, the run-off being drained to sump.



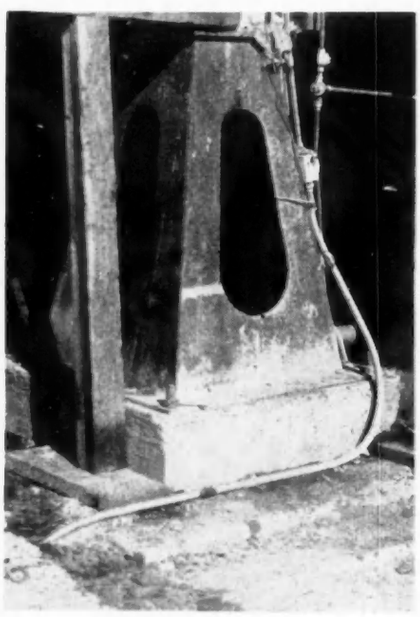
## Prefabricated Foundation Pier Speeds Rig Building

**DERRICK UNITS**

To cut drilling costs as much as possible one drilling company eliminates the expensive procedure of building forms, setting reinforcing steel and pouring concrete for derrick leg piers. Instead, pre-fabricated, shop-made steel supports are utilized, dimensions and specifications being the same as those of concrete bases. Made of steel plate and all-welded, the semi-enclosed, box-like structures are comparatively light and require only a fraction of the installation time required for conventional concrete piers. Each is secured to a low concrete base by only four stud bolts. In the 1-inch thick plate forming the top of the support, drilled holes adapt it to bolt specifications of the derrick footing.

In tearing down, as well as during rigging-up, savings are realized. The steel bases may be removed in only a few minutes and hoisted onto a truck for immediate installation on the next location. In order to further cut production costs few production derricks are being installed on wells, so removal of the corner piers leaves a wide, clear space about the well, permitting easy access for portable pulling and servicing units. Strength and dimensions of this type base may be varied to suit drilling conditions and type rig. The company currently using this system has had excellent service with this design, while the several hundred dollars saved on each well have made their use extremely practical.

Being strongly braced on account of the method followed in welding up the unit, the corner posts effectively absorb rig vibration and protect corner bolts.



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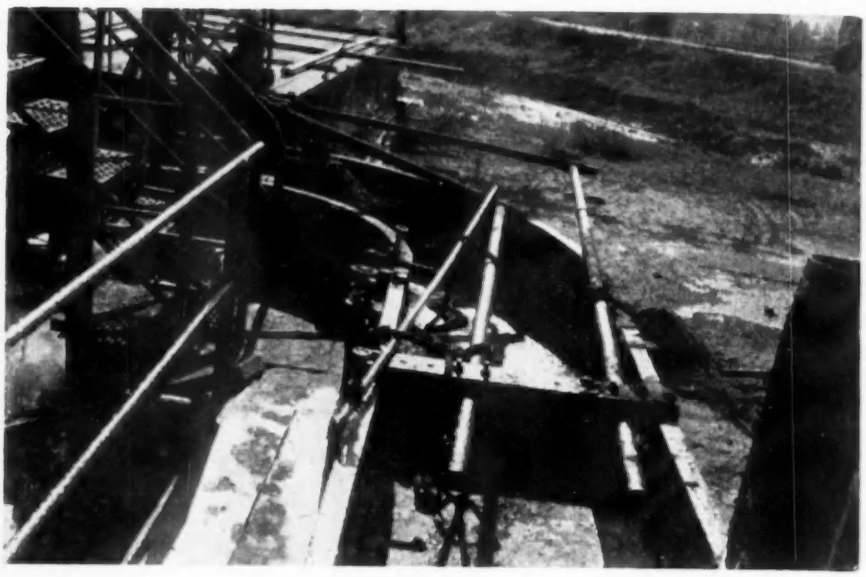
## Mud-Return Line Christmas Tree Spans Ditch



The practice of installing a small Christmas tree at the end of the mud return line provides several important operating and safety advantages. Under normal drilling conditions, mud returns flow directly through the large valve at the end of the line, but should unusually heavy well pressures be encountered the valve may be closed and the pressure then bled off through either or both of the two lines forming the arms of the tree. These lines make a right angle turn and are directed into the sluiceway, thus effecting the saving of expensive and usually specially-prepared heavy mud. The saving of this mud often spells the difference between a blow-out and a controlled well, for it takes an appreciable time to mix and circulate a new batch of weighting material.

**MUD CONTROL**

With this means of control, limited circulation may be continued, thus conditioning the hole until normal drilling can be resumed. When bringing in the well, circulation of oil or other conditioning fluids is facilitated by being able to maintain a continuous washing action under high pressure with no fear of the well getting out of control.

A short beam equipped with two underslung U-bolts laid across the mud ditch provides a firm support and snubber for the ends of the outlet lines.

Being strongly braced on account of the method followed in welding up the unit, the corner posts effectively absorb rig vibration and protect corner bolts.

Not only does the flume mounting of the various returns improve the visibility of the lines, thus aiding in checking effectiveness of the various units, it also permits use of one of the pipes, centered across the ditch, as a means for jetting accumulations of sand or cuttings.

When the flume is disconnected from the mud return line for transportation to a new site, the various lines used in the hook-up may be broken apart into lengths which nest within the flume, insuring delivery of the entire system to the new location, in the order in which re-connecting is to be carried out.

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# Tax Review

A Regular Feature of THE OIL WEEKLY

By WILLIAM O. TAYLOR*

## Tax Court Decision Regarding Oil Payment Appears Erroneous

A S A general proposition, the owner of an oil payment, rather than the owner of the working interest out of which it is payable, must report and pay tax on the value of the production which applies to liquidation of the oil payment. Likewise, he is entitled to the depletion allowance with respect to that part of the production. The Tax Court has recently held otherwise in the case of *Charles Burke et al v. Commissioner*, 5 T. C. (No. 142). Of the two reasons given by the court, one seems clearly wrong and the other at least doubtful.

Burke et al, who owned undivided interests in two leases, purchased the undivided interest of Signal Hill, a corporation, in the same leases. Signal Hill retained an oil payment of $50,000, payable from fractional interests in production from the leases. In each case, the fractional interest to be applied to liquidation of the oil payment was greater than the fractional interest owned by Signal Hill prior to its assignment to Burke et al. Signal Hill also retained a lien on an undivided interest in the leasehold estate "to secure the payment, payable out of oil, herein provided for." The quoted language is verbatim from the contract.

The government took the position, in which it was sustained by the Tax Court, that Burke et al must include in their income the value of the oil which went to Signal Hill under its oil payment. It would not follow that Signal Hill would not also pay a tax on such value, for it would also, under the government's theory, be required to report it as income—not as depletable oil income but as proceeds of the sale of the leases to Burke et al, upon which it might be entitled to the capital gains tax rate.

The Tax Court relied principally on the decision of the Supreme Court in *Anderson v. Helvering*, 310 U. S. 404, in holding that the transaction in the *Burke* case should not be treated as an ordinary oil payment. In the *Anderson* case, the owner of the oil payment was entitled, under his contract, to have his oil payment satisfied out of the selling price of the lease, if sold. The Supreme Court held that, since the owner of the oil payment did not have to look solely to oil production to recover the amount to which he was entitled, he did not have an "economic interest," i.e., a depletable interest, in the oil in place.

The Tax Court, in the *Burke* case, pointed out the "additional security" which Signal Hill had by reason of the fact that its oil payment was payable out of a larger interest than it had before it sold to Burke et al, and concluded that Signal Hill did not have a depletable interest, from which it followed that the depletable interest formerly owned by Signal Hill had been acquired in its entirety by Burke et al, who must report all the depletable income. On this point, the decision seems clearly wrong. What Signal Hill reserved from its sale to Burke et al was oil in place of a value of $50,000 if, as and when produced. The fact that the oil payment was payable out of a larger share than Signal Hill had theretofore owned, while it may have made it more likely that the oil payment would pay out, did not make Signal Hill any the less *solely dependent upon oil production* to recover the amount to which it was entitled. This is the test of an "economic interest," and the decision of the Tax Court, insofar as it is based on this point, seems out of harmony with well established principles. Parts of the *Anderson* decision seem to have been badly misinterpreted by the Tax Court.

The Tax Court thought, too, that the lien retained by Signal Hill brought the transaction within the scope of the *Anderson* case. Considerable ambiguity in the terms of the contract make it impossible to determine whether the Tax Court's decision can be supported on this ground. The quoted language above, standing alone, would indicate that the lien secured Signal Hill only as to amounts to which it had become entitled by reason of production, i.e., the value of its fractional interest in oil *already produced*. If this be the case, Signal Hill, in the first instance, could look only to production to collect its $50,000, and its interest was an "economic interest" as that term has been defined in dozens of cases.

There are other provisions in the contract, however, from which it may be inferred that, if the $50,000 was not paid out by production in two years, Signal Hill could foreclose its lien on the interest in the leasehold estate to collect the unliquidated balance. If this be the true meaning of the contract, then indeed Signal Hill need not look solely to oil production to recover its $50,000, in which case the rationale of the *Anderson* case is applicable and the Tax Court's decision is probably correct.

* * *

## Estate Tax Lien Should Be Investigated in Purchasing Mineral Interests

There is a well-grounded saying that nothing has cured so many land titles as the discovery of oil. This is only another way of saying that every possible claim to a tract of land will be urged if oil is discovered thereon, although the claimants may have shown no interest at all as long as the land seemed useful only for raising cotton, grazing cattle or merely holding the earth together.

Most of the encumbrances on a land title, other than claims from adverse possession of the land, will appear of record in the county where the land is located, and will thus be disclosed by examination of an abstract of title to the land, or will be of no force and effect against an innocent purchaser of an interest in the land if not so recorded. There is a notable exception in the case of the lien of the federal government for collection of the estate tax.

The Internal Revenue Code (Section 827) provides that the federal estate tax, unless paid in full, shall constitute a lien for ten years, beginning with the death of the decedent on any property included in the estate of the decedent. Contrary to practically any other character of lien, *the lien of the federal estate tax* (with some exceptions hereinafter noted) *need not be recorded in order to cut off the rights of an innocent purchaser of the land*. Therefore, an abstract of the county records affecting title to any particular tract is no protection against the lien of the federal estate tax.

There are several ways in which the land may be divested of the lien. If the tax has been paid in full, the lien is, of course, divested. This does not mean, however, that the lien is not effective if an estate tax return has been filed and the tax liability shown thereon, if any, has been paid. Upon audit of the return, the government frequently determines that additional tax is due. The lien may be invoked to collect the deficiency.

Under certain circumstances, an executor may request a determination of the amount of tax due by an estate, in which case the government must notify him within one year of such amount. Upon payment of this amount, the executor is entitled to be discharged from personal liability. Land belonging to the estate thereafter sold to a bona fide purchaser for value is divested of the lien, even though a deficiency in tax should later be determined.

Sections 3673 and 3674 of the Code set out circumstances under which a total or partial release of the lien may be made. Release of the entire lien is authorized if the Commissioner of Internal Revenue finds that the tax has been fully paid or its collection is barred by limitation or if he is furnished with a bond, satisfactory to him, securing the payment of the tax. A release of any particular item of property is authorized if the Commissioner determines that the value of other property remaining subject to the lien is twice the amount of the tax liability as yet unpaid, or if a partial payment on the tax is made in an amount satisfactory to the Commissioner but in no event less than the value of the property sought to be released.

Certain property which does not belong to a person when he dies may nevertheless be included in his estate for tax purposes. For instance, A gives some producing royalties to his son B several years before A dies. The government may determine that the gift by A was made in contemplation of death, and in that event the value of the royalties at the time of A's death will be included in his estate. An innocent purchaser for value from B will take the royalties divested of the lien, as is generally true in case of any property not actually owned by the decedent at death but nevertheless included in his estate. The proceeds of the sale in B's lands are subject to the lien but if he has dissipated the funds so derived, then the property still owned by A at his death is subject to a lien for the *entire amount* of the estate tax, including that part of the tax based on the value of the royalties given to B.

A prospective purchaser should make a full investigation as to the estate tax lien, if it appears that the property he is about to buy was owned by some person at the time of his death within the preceding ten years or if it was transferred by him prior to death in a transaction which may not have been a bona fide sale at actual value.

* The author is a member of the firm of Butler, Binion, Rice & Cook.

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# Government-Owned Pipe Line Facilities May be Usable for Storage Purposes

Possibility that some of the government-owned pipe line facilities may be usable for storage purposes was raised last week when the Surplus Property Administration approved a proposal of the Army-Navy Petroleum Board to store 2 million barrels of 100-octane gasoline in the Baytown-Beaumont gathering-line tankage of the Little Big Inch Pipe Lines.

The SPA action was taken to alleviate a critical oil storage situation facing the Army and Navy, and authorizes use of the tankage until May 1 and indefinitely thereafter unless the War Assets Corporation leases or sells the line for the movement of oil products after that date.

It was explained that heavy reductions of crude runs, with serious effect on the production of distillates and residual fuel oils now in short supply may be averted by using the line's storage facilities, and also that a saving to the government in storage cost will result.

It was disclosed that 18 million barrels of 100-octane gasoline are now in storage throughout the United States, a large portion of it at refineries or in tankage required for normal refinery operations. The refineries, unable to find other storage for motor fuel gasoline being produced for next summer's demand, are urgently in need of facilities leased to the services when they were directed by the Joint Chiefs of Staff to establish a strategic storage stock of 15 million barrels of 100-octane, it was said. These leases expired December 31, and certain Gulf Coast refineries immediately ask the services to remove their products from the tankage.

It was emphasized that the use of the Texas line will have no bearing on its status as a surplus facilities, and was not to be construed as a precedent for any similar proposal affecting other government-owned facilities.

## *Hope, East Ohio Gas Firms Plan to Improve Systems*

Hope Natural Gas Company and East Ohio Gas Company have filed applications with FPC for construction of $9,857,500 of improvements in their respective systems to meet increased demand.

The Hope application covers the construction in West Virginia of 24 miles of 20-inch, 28 miles of 12¾-inch, and 36 miles of 12¾-inch high-pressure loop lines and 55 miles of 12¾-inch line from its Jackson compressor station to the Baileyville magisterial district in Wyoming County, together with additional equipment at various of its plants.

East Ohio proposes to build a 95-mile, 18-inch pipe line from Hope's proposed terminal at Pipe Creek on the Ohio River to Austintown Junction, and a 49-mile, 20-inch line to Cleveland. The proposed pipe line will have an initial capacity of 119 million cubic feet of gas daily.

## *Aerial Inspection System Adopted by Kaw Pipe Line*

The Kaw Pipe Line Company, which operates in Kansas for The Texas Company, Phillips Petroleum Company and Cities Service Oil Company, is the latest pipe line organization to substitute aerial for ground inspection to locate oil leaks along its system. The company has contracted with Fred A. Thompson to fly over the entire 1000-mile route of main and feeder lines in a maximum of three days. Thompson, who flys a Cub cruiser plane, replaces eight men who spent full time walking the main line between Logan and Lyons, Kan. Leaks are easy to spot from the air, especially during dry weather, and all leaks are marked on a map and immediately reported to the company.

## *Pipe Line Office Opened*

Williams Brothers Pipeline Company of Tulsa has opened an office in Neoga, Ill., to serve as headquarters while constructing an oil line from the Mattoon, Ill., pool to Montrose, a distance of 20 miles.

## *Texas-California Gas Line Hearings Slated by FPC*

Testimony on the proposed 1200-mile natural gas line from Texas to California will be taken by the Federal Power Commission at hearings which will open in Washington February 13 and later be transferred to Los Angeles.

Designed eventually to deliver 305 million cubic feet of gas daily to Southern California markets where local production is declining, the project provides for construction of 1000 miles of 24- and 26-inch line by the El Paso Natural Gas Company from a point near Dumas, Tex., to the state line near Blythe, Cal., to utilize the reserves in the Permian Basin, Panhandle and Hugoton fields. The line would be designed for an initial delivery of 125 million cubic feet of gas daily, at a cost of $27,822,000, and would later be increased to 175 million cubic feet at an additional expenditure of $9,365,000, and eventually, with a further expenditure of $14,038,000, would be brought to a capacity of 305 million cubic feet.

The El Paso company would sell the gas to the Southern California Gas Company and Southern Counties Gas Company at the state line, and they would build a 214-mile, 26-inch line to Santa Fe Springs, where a connection would be made with a pipe line extending westward to Los Angeles. The initial cost would be $12,140,000, with additional expenditure of $3 million to bring the line to capacity.

### *Skelly Completing 47 Miles Of Lines in Hugoton Pool*

Skelly Oil Company is completing 47 miles of natural gas gathering lines in the Guymon area of the Hugoton gas pool in Texas County, Okla. Lines range from four to 22-inches and will serve the company's several leaseholds in the west and southwest portions of the pool, extending to the Guymon townsite. Capacity of the system is rated at 80 million cubic feet daily. J. C. Carlson and Son of Pampa, Tex., has the construction contract.

### *Right-of-Way Purchased For 30-Mile Kansas Line*

White Eagle Oil & Refining Company is purchasing right-of-way for approximately 30 miles of eight-inch crude oil line to be laid from the Kaw Pipe Line Company's station in the northeast corner of the Bemis pool, Ellis County, Kans., to the Morel pool in Graham County. Capacity will be about 18,000 barrels per day. Construction will start as soon as weather permits but the company plans to have the line in operation by April 1.

### *Humble Awards Contract for Work on South Texas Line*

Humble Pipe Line Company has awarded contract to Latex Construction Company, Houston firm, to take up five sections of eight-inch pipe totaling 41 miles on its Satsuma-Webster carrier in Harris County, Texas, near Houston, and relay 16½ miles of 12-inch and 8½ miles of eight-inch pipe on the same line.

### *Mississippi Extension Is Completed by Interstate*

Interstate Oil Pipe Line Company has concluded its initial project of connecting a group of oil fields in Mississippi with the completion of a 37-mile combination six- to ten-inch extension from its Mallalieu field line to the Gwinville field, Jefferson Davis County.

The latter field has 12 producers that have been restricted to about 450 barrels daily, representing Standard Oil Company's purchases for tank car movement from the rack at New Hebron to its Avondale, La., terminal. Development of the Gwinville multi-pay field will be accelerated as result of the direct pipe line outlet.

### *Magnolia Hikes Capacity of Midland-Corsicana Carrier*

Magnolia Pipe Line Company has increased the capacity of its 337-mile, 12-inch carrier from Midland to Corsicana, Texas, from 57,000 barrels to 66,000 barrels daily through the installation of additional pumping units at Iatan, Clyde and Walnut Springs stations

This trunk line was completed March 1, 1944, with a rated capacity of 42,000 barrels daily and serving primarily as a feeder of Permian Basin sour oil for the Big Inch during the war. The first increase followed within a year by tying in additional stations that also serve the company's parallel eight-inch sweet crude unit.


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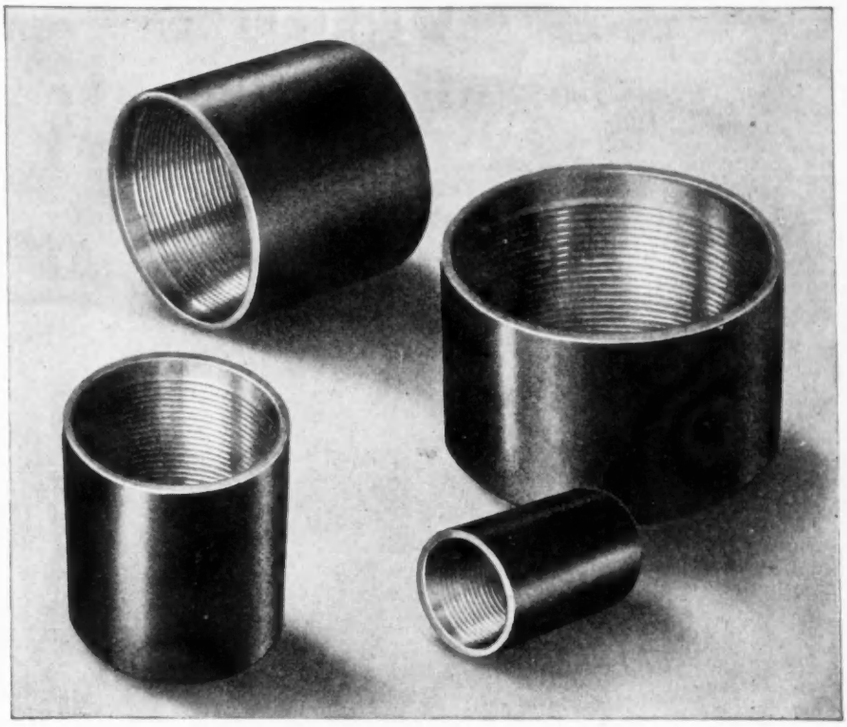

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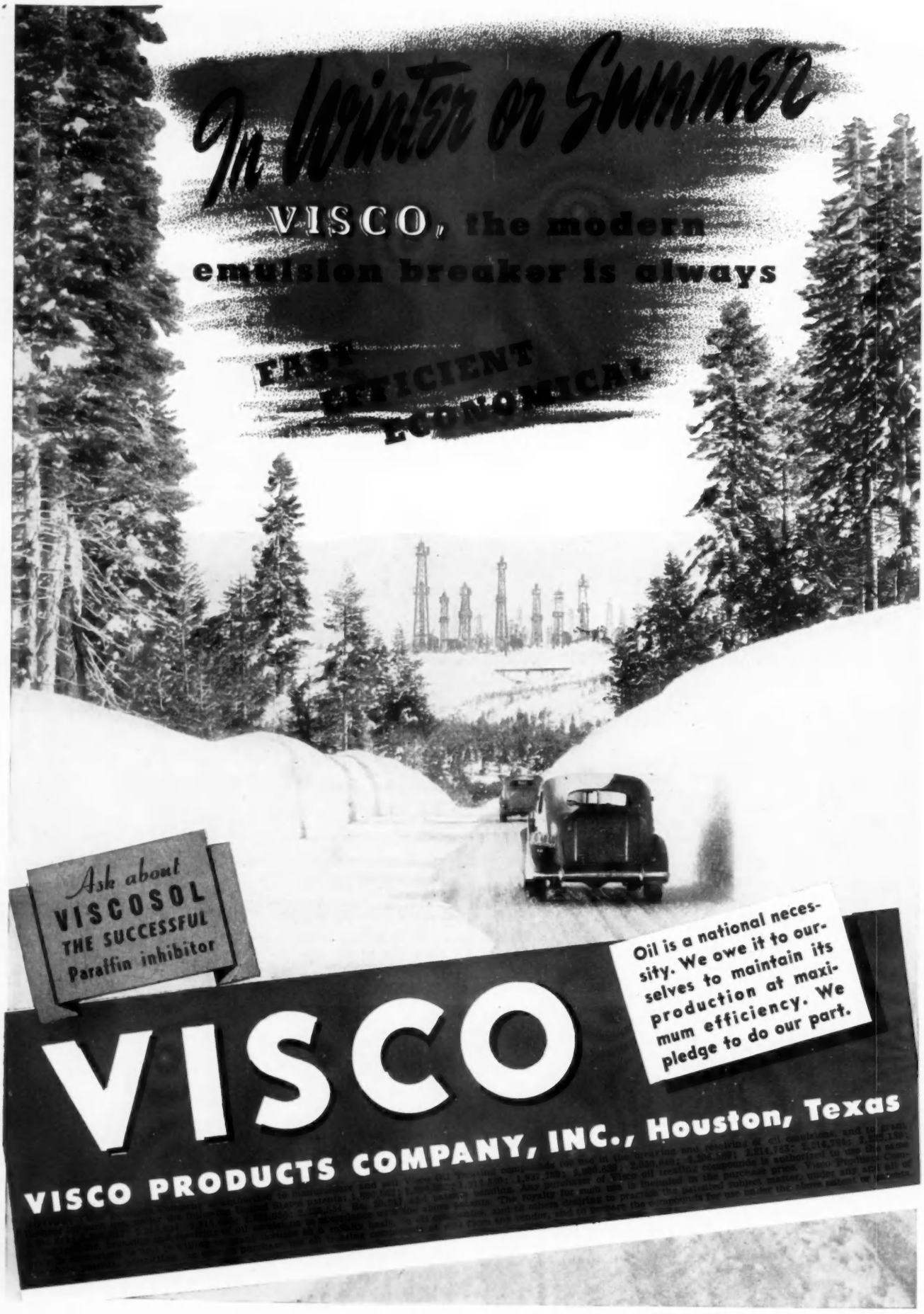
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## ☆ California

### *Solano County Gas Field Is Discovered by Shell Company*

Shell discovers gas field in Solano County; deep test in Kern River field swabbing for production; Bacon Hills wildcat produces mostly water from swabbing operations and will be recemented; Ohio prepares to start second Gardena wildcat as a result of showings in first test; efforts continued to make commercial producers of 2 Long Beach field deep tests.

**Solano County:** A gas field has been discovered by Shell Oil Company in McCune 1, 29-8n-1e, which on production test flowed an estimated 6 million cubic feet through perforations at 5209-5239 feet. Total depth is 5528 feet with plug at 5240 feet. Shell has 7000 acres under lease in the area, which extends into Yolo County. The discovery well is about 6 miles east of the town of Winters, 30 miles northwest of Sacramento and a like distance north of Shell Chemical Corporation's plant at Shell Point.

In the Rio Vista gas field Amerada Petroleum Corporation and Standard Oil Company of California completed substantial gas producers. Amerada's N. Hamilton 2 was completed flowing 2,475,000 cubic feet through a ¼-inch choke from 2 perforated intervals at 5410-5560 feet. Standard's Jordan Unit 3 completion was good for 4,048,000 cubic feet through a 3/8-inch choke, total depth 4245 feet. Both projects have been shut in.

**Kern County:** A production test is set for Tide Water Associated Oil Company's deep test of the Kern River field, Luck 154 in 30-28s-28e. Drilling has been stopped at 5998 feet. Formation test of a perforated interval at 5744-50 feet recovered 1800 feet of fluid with tester open 2 hours and 6 minutes. Tubing has been run to 5734 feet and well will be swabbed. A producer will mark the discovery of a new producing zone in one of the San Joaquin Valley's oldest oil fields. Kern River field was discovered in 1899.

Tests of Bandini Petroleum Corporation's Bacon Hills wildcat, Bacon 1 in 27-28s-20e, are continuing. Mostly water has been recovered in recent swabbing operations and preparations are being made to recement. Source of the water is reported to be other than the formation showing good oil indications.

In the Grapevine-Tejon area Reserve Oil & Gas Company has gone back into its abandoned 33-6 in 33-11n-19w, for a test of the Chanac and Santa Margarita zones. Operator's 33-12 in Sect. 33 has been completed on the pump for 36 barrels of 19.8-gravity oil. Drilling & Production Company's O.M.B. 27, same section, has 7-inch casing cemented at 4420 feet, with total depth 4456 feet in oil sand. British American and Capital Company have completed their second well in their eastern extension of the Grapevine-Tejon field, Tejon Ranch 51-5 in 5-10n-19w, flowing 34 barrels through a 19/64-inch choke.

**Kings County:** The Four Star Oil Company has staked Corcoran-Irrigation 1, wildcat which operator intends to drill to 13,000 feet if necessary in search of Eocene production. Company is headed by T. W. Bailes.

**Los Angeles County:** The Ohio Oil Company is reported getting ready to drill a second test of the Gardena area, a short distance south of Los Angeles. Ohio recently abandoned Gardena Community 1 when it failed to eliminate water in the well which had shown excellent promise of a producer. The new try, to be known as Community Four 1, is about a mile west of the first well.

In the Bandini or East Los Angeles area Richfield Oil Corporation was preparing to retest oil showings at 8500-8600 feet in Union Pacific Unit 1, wildcat in 9-2s-12w. Foundation was being poured for Keller 1, also in Sect. 9. Simons 1 in Sect. 15 and Vail 1 in Sect. 16 are drilling and coring. Chanslor-Canfield Midway Oil Company's Bandini 1 in 21-2s-12w may soon provide additional information about this general area as it is coring below 8500 feet. No showings have been reported.

The Superior Oil Company's Torrance 66, Schist test in the Torrance field, has reached 4600 feet. Operator expects the Schist at approximately 6000 feet.

Productive possibilities of Shell's 2 deep tests in the Long Beach field do not appear to be commercial in character on the basis of recent work. Company's Alamitos 48A, bottomed at 14,950 feet, is being put on gas lift, but the well appears good for only about 60 barrels net. Stakemiller-Rose 1, drilled to 12,381 feet, with plug at 11,520 feet, is swabbing 110 barrels of 26-gravity oil cutting 29 percent from the De Soto zone.

**Orange County:** General Petroleum Corporation's deep test of the Buena Park area, Librown 1 in 21-3s-11w, total depth 12,600 feet, has ben cleaned out to bottom and perforated liner is being run.

**Santa Barbara County:** Palos Verdes Estate, Inc., has brought in a good well in the Cat Canyon field. Operator's P. C. 2 in 27-9n-32w has been completed pumping 600 barrels of 14.4-gravity oil. Depth is 6308 feet, with shutoff at 5592 feet. Well has been shut in while heaters are being installed.

### *Water-Flooding Approved*

Permit to attempt a water-flood operation in the old Fitts pool of Pontotoc County, Oklahoma, has been granted by the Oklahoma Corporation Commission to R. W. Simpson and associates. This is the first water-flood operation authorized for the pool which, in its day, produced millions of barrels of oil.

## Wells Completed in United States in Week Ended January 26, 1946

**Data preliminary and subject to revision. Revised and more complete data on all completions shown in monthly summary of drilling, published in second issue of each month. More detailed data on wildcats published in third issue of each month.**

| State or District | FIELD COMPLETIONS: New Wells *Oil | Gas | †Input | Dry | Total | Old Wells Deepened | WILDCAT COMPLETIONS *Oil | Gas | Dry | Total | ALL COMPLETIONS: This Week | Last Week | Cumulative: This Year | Last Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alabama | | | | | | | | | 1 | 1 | 1 | 1 | 3 | 2 |
| Arkansas | 2 | | | 1 | 3 | | | | | | 3 | 1 | 12 | 11 |
| California | 27 | 2 | | | 29 | 1 | | 1 | 6 | 7 | 37 | 41 | 161 | 157 |
| Colorado | | | | | | | | | | | | | 5 | 4 |
| Florida | | | | | | | | | | | | 1 | 2 | 1 |
| Georgia | | | | | | | | | | | | | | 1 |
| Illinois | | | | | | | | | | | | 79 | 79 | 132 |
| Indiana | | | | | | | | | | | | 18 | 18 | 16 |
| Iowa | | | | | | | | | | | | | | 1 |
| Kansas | 36 | 9 | | 9 | 54 | 1 | | | 7 | 7 | 62 | 53 | 168 | 101 |
| Kentucky | 1 | | | | 1 | | | | | | 1 | 38 | 39 | 46 |
| Louisiana | 10 | 4 | | 3 | 17 | | 2 | | 1 | 3 | 20 | 27 | 90 | 78 |
| North Louisiana | 3 | 3 | | 1 | 7 | | 1 | | 1 | 2 | 9 | 15 | 45 | 32 |
| South Louisiana | 7 | 1 | | 2 | 10 | | 1 | | | 1 | 11 | 12 | 45 | 46 |
| Michigan | 4 | | | | 4 | | 1 | | 2 | 3 | 7 | 14 | 60 | 61 |
| Mississippi | 5 | | | | 5 | | | | 2 | 2 | 7 | 4 | 19 | 28 |
| Missouri | | | | | | | | | | | | | | 4 |
| Montana | 4 | | | 1 | 5 | | | | | | 5 | | 27 | 10 |
| New Mexico | 9 | 2 | | 1 | 12 | | 1 | | 2 | 3 | 15 | 6 | 32 | 40 |
| New York | 15 | | 10 | | 25 | | | | | | 25 | 25 | 100 | 51 |
| Ohio | 4 | | | 1 | 5 | | | | | | 5 | | 11 | 52 |
| Oklahoma | 43 | | | 13 | 56 | 2 | 5 | 1 | 29 | 35 | 93 | 37 | 222 | 160 |
| Pennsylvania | 27 | 3 | 15 | | 45 | | | | | | 45 | 42 | 185 | 160 |
| Texas | 80 | 12 | | 36 | 128 | 3 | | 1 | 26 | 27 | 158 | 159 | 613 | 501 |
| E.Tex.Bor.Co.'s | | 2 | | | 2 | | | | 1 | 1 | 3 | 2 | 16 | 2 |
| Rest of E. Texas | 7 | 2 | | 1 | 10 | | | | 4 | 4 | 14 | 8 | 36 | 17 |
| North Texas | 20 | | | 15 | 35 | 1 | | | 4 | 4 | 40 | 73 | 175 | 137 |
| W. Central Tex. | 8 | 1 | | 6 | 15 | | | | 5 | 5 | 20 | 8 | 58 | 19 |
| West Texas | 21 | 1 | | 7 | 29 | 2 | | | 2 | 2 | 33 | 23 | 117 | 126 |
| Tex. Panhandle | 4 | 3 | | 1 | 8 | | | | | | 8 | 7 | 34 | 46 |
| G. Coast, Upper | 8 | | | 3 | 11 | | | | 1 | 1 | 12 | 11 | 52 | 45 |
| G. Coast, Lower | 11 | 1 | | 3 | 15 | | | | 4 | 4 | 19 | 20 | 93 | 72 |
| Southwest Texas | | 2 | | | 2 | | | 1 | 5 | 6 | 8 | 2 | 24 | 34 |
| S. Central Tex. | 1 | | | | 1 | | | | | | 1 | 5 | 8 | 3 |
| West Virginia | | 11 | | 3 | 14 | | | | | | 14 | | 40 | 48 |
| Wyoming | 1 | | | | 1 | | | | | | 1 | | 7 | 7 |
| Total U. S. | 268 | 43 | 25 | 68 | 404 | 7 | 9 | 3 | 76 | 88 | 499 | 546 | 1,893 | 1,672 |

* Includes distillate wells. † Includes salt water disposal wells.

## ☆ Oklahoma

### *Globe Opens Cromwell Sand Pool in Seminole County*

Globe opens Cromwell sand pool in Seminole County; Skelly has discovery east of Yeager; Hunton yields new pay near Tribbey; Carter to complete Vierson test in Hunton zones; Pure's Cimarron discovery gauges 583 barrels of oil in 24 hours.

**Seminole County:** Continuing the brisk wildcatting which has characterized activities in Seminole County during the past few months, Globe Oil & Refining Company, newcomer to Oklahoma, opened a Cromwell sand pool south of the prolific Cheyarha pool at Davis-Patterson 1, SW SW NW 22-9n-7e, rated by field men at more than 250 barrels of oil daily. The well was swabbed in through tubing from 3425-50 feet and after cleaning itself the flow was directed into tanks. At the time it was making an estimated 8 million cubic feet of gas. Globe set a completion pattern for Cromwell sand wells in the area by loading the hole with water, drilling out plug, running in tubing and then swabbing through tubing.

**Hughes County:** A new discovery loomed at Skelly Oil Company's Price 1, S WNE NW 26-8n-10e, east of the old Yeager pool and south of the Wetumka area. After picking up the Wapanuka lime at 3065 feet, it drilled into the Cromwell sand topped at 3357 feet where cores showed good porosity and saturation. A drill-stem test between 3325-60 feet showed for an estimated 10 million cubic feet of gas plus 45 feet of drill mud but no water. Operator drilled to 3427 feet and was preparing to test.

**Pottawatomie County:** About 5 miles east of Tribbey, J. F. Smith et al's Kerker 1, SW SE NW 3-7n-3e, is a new Hunton lime discovery indicating a new stratigraphic type pool. Topping the Hunton at 4536 feet and with casing set at that depth, operator acidized and tested for an estimated 40 barrels of oil on the pump between 4536-63 feet. The well is near the old St. Louis area. South of the Prague pool, Kemrow-Arrow's Breidenthal 1-A, NE NE NW 23-11n-6e, was showing some oil and gas while cleaning out at 2715 feet in the Calvin sand.

**McClain County:** The Carter Oil Company was preparing to acidize the Bois D'Arc and Chimney Hill sections of the Hunton lime at Vierson 1, C SE NE 8-7n-3w, which opens a new producing horizon for the deep Washington pool, also a Carter discovery. On previous tests the well gauged 230 and 414 barrels of oil in 16 and 24 hours, respectively, through tubing, from the Bois D'Arc between 9668-92 feet, and 347 barrels of oil in 24 hours through tubing from the Chimney Hill section at 10,054-75 feet. Hunton lime production greatly increases the importance of the area where production so far has been from the deep Wilcox sand with wells costing in excess of $250,000 to complete.

**Cimarron County:** The Pure Oil Company has finaled Johnson 1, SW SW SE 12-5n-7ecm, a mile south of the Oklahoma-State 1 which recently opened a new pool in the Keyes area to set off a wave of lease and royalty buying and assuring an aggressive drilling campaign this year for the Oklahoma Panhandle area. After testing for several weeks the Johnson has been completed for an estimated 600 barrels of 36-gravity oil per day and is shut in for storage and connections. Pure has 3 other wells drilling in the area and if successful will probably lay a pipe line to the nearest trunk system, about 60 miles distant. Production is from the Cherokee sand from 4855-85 feet, total depth.

**Garvin County:** Sohio Petroleum Company continues testing Tolbert 1, NE NW NE 9-3n-1w, prospective pool opener 6 miles east of Antioch, where the Simpson sand yielded some oil and an estimated 2 million cubic feet of gas on drill-stem test. Last report revealed that the well flowed 40 barrels of oil, 30 barrels of water, and about 3 million cubic feet of gas through perforations between 4500-52 feet. The test is at 4587 feet, total depth, in the Wilcox sand. Crews continue swabbing and a producer is expected.


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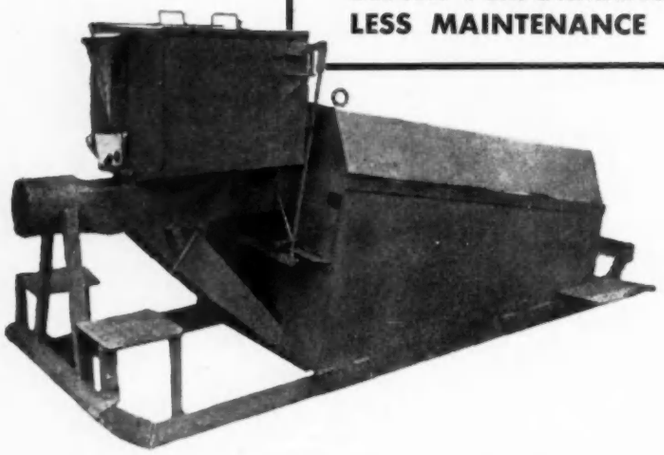

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## ☆ Kansas

### *Phillips County Key Test Has Salt Water in Arbuckle*

Pool extensions feature operations; key wildcat in Phillips County acidizes Arbuckle, gets salt water; small Lansing lime pool hit near Eckel; new gas field looms northwest of Lake City pool.

**Phillips County:** Opening of a new oil field near the Nebraska County line has been delayed as water was reported in Helmerich & Payne, Inc. et al's Bowman 1-A, NW NW SE 3-5s-20w. This

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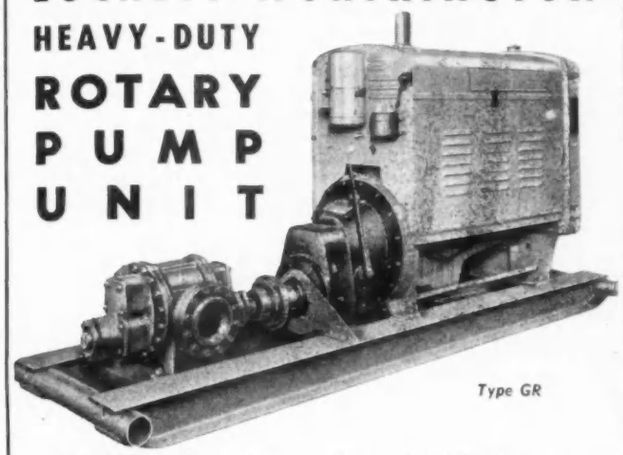

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is a key wildcat closely watched by operators and which showed for a good producer in the Lansing on a drill-stem test. Drilling to the Arbuckle lime, operators acidized the section, which is very soft and the acid is believed to have forced its way below plug-back depth. On test the well made about 4 barrels of oil and considerable salt water, now being plugged off.

**Cowley County:** Ed Adair and Harvey Blair have extended the Couch pool ½-mile west at Sandstrum 1, NE NE NE 14-30s-5e, and are installing pump after getting 1600 feet of oil in the Bartlesville sand between 2784-2824 feet, total depth. The sand was topped 20 feet higher than in the Couch pool. Some geologists believe the producing section of the pool is actually on the eastern edge of the main structure and the Sandstrum well seems to bear this out. It proves up about 400 acres.

**Russell County:** Royer & Farris extended the Mahoney pool about ¾-mile northwest, completing Mahoney 1, SE SE SE 8-14s-12w, for an estimated 385 barrels of oil per day on the pump from Lansing lime between 2935-76 feet, total depth. The well establishes about 15 good locations.

**Ellsworth County:** The Edwards pool was given a ½-mile north extension at Nelson Drilling Company's Williams 1, NW SW NW 22-17s-8w, where pumping equipment is being installed after a 1400-foot oil fill-up in the Arbuckle between 3242-59 feet following an acid treatment. The well checks 5 feet higher than the highest well at the north end of the pool.

**Butler County:** S. & L. Drilling Company completed Bettle 1, SWC 1-27s-6e, to open a small Lansing lime pool about a mile northeast of the Eckel field. Lansing was topped at 2748 feet and the well was carried to 3160 feet in the Arbuckle. Plugged back to 2740 feet, operator tested the Lansing between 2750-60 feet, completing as a 20-barrel daily pumper plus 150 barrels of water. Further drilling may link the area with the Eckel field.

**Barber County:** Drillers Gas Company, which has enjoyed considerable success as a wildcating organization during the past year, chalked up another gas discovery at Skinner 2-B, SW NE NE 2-31s-14w, to open what appears to be an important new gas field about 2½ miles northwest of the Lake City pool. The well gauged 40 million cubic feet of gas per day from the Maquoketa lime between 4372-80 feet, total depth. The discovery apparently is on a trend play extending northeast into Pratt County toward the Chitwood and Cairo areas.

## ☆ New Mexico

### *Lovington Field Development To Be Revived by Extension*

Development of the Lovington field to be revived by east extension; first Lower Permian test for the Cooper-Jal field has additional shows of oil; Drinkard field adds new producer on south end.

**Lea County:** Skelly Oil Company's State 6-O, C SE SE 31-16s-37e, 1650-foot east outpost, flowed 216 barrels natural through 20/64-inch choke from broken San Andres at 4660-4945 feet, with elevation 3816 feet. Tide Water Associated Oil Company's State 1-P, 990 feet east, swabbed 95 barrels daily after acidizing at 4734 feet, and reached water when deepened to 4946 feet on the strength of the performance of the offset.

Magnolia Petroleum Company's Brunson-Argo 9, highest of 3 Ellenburger wells awaiting official gauge near the Penrose-Skelly field deep discovery, was testing perforations at 7770-7805 feet in Ellenburger, topped at 7675 feet. The upper zone of porosity will be perforated also. Rowan Drilling Company's Elliott 3-B-9 flowed 863 barrels oil on 16-hour test through ½-inch choke after using acid through perforations at 8041-8100, 8105-45, and 8150-80 feet. Humble Oil & Refining Company's Greenwood 8 was emptying tanks for official gauge of perforations at 8005-30 and 8090-8140 feet.

**Drinkard Field:** Western Gas Company's Parcell-Federal 1, southeast offset to production, swabbed and flowed 115 barrels of oil on 10-hour test after using acid in open hole at 6862-7080 feet. Lion Oil Company's Wylie 1, ½ mile east of southerly completion, set pipe after indicating production in drilling too 7097 feet.

**Dublin Field:** Humble's Leonard-Federal 1-B, ½ mile north of its Ellenburger discovery, was drilling dry lime at 8855 feet, correlating low to the state's record-depth producer.

Western Gas Company's Eaton 1, C SW SW 12-25s-37e, east offset to the first Pre-Permian test for Lea County, produced gas to the surface when tester was used in Clear Fork at 4684-4785 feet. A second drill-stem test at 4754-4885 feet produced gas to surface within 5 minutes, and the fluid recovery consisted of 810 feet of heavily gas-cut mud and 150 feet of sulphur water. Pipe will be set to complete through perforations. The old deep test reached granite at 9592 feet, and made a gasser in plugging back to the 4800-foot Clear Fork.

Humble's Cooper 1, deepened producer for the Cooper-Jal field, was drilling lime and chert at 7090 feet, having entered the Glorietta at 6180 feet and the Clear Fork at 6280 feet. It is the first deep test for the area. Drill-stem test at 6938-69 feet yielded 50 feet of oil-cut mud.

## ☆ West Texas

### *Silurian Yields Big Gas Flow Northwest of Wheeler Field*

Silurian yields big gas volume on northwest edge of Wheeler field; Dawson County discovery exceeds original estimate; Crockett County has 2 prospective strikes.

**Winkler County:** Sunray Oil Corporation's Wheeler 1, C SW NE PSL 12 and on the northwest edge of the Wheeler field, rated at 13 million cubic feet of gas with 50-gravity distillate from perforations at 9114-44 feet in Silurian, topped at 9005 feet. The Ellenburger section at 10,540-680 feet, and the 8300-foot Devonian will be tapped for dual completion. Sun Oil Company's Wheeler 2, southwest edge of the field, tested dry in the Silurian at 9180-9320 feet, and was drilling at 9495 feet to explore the Ellenburger.

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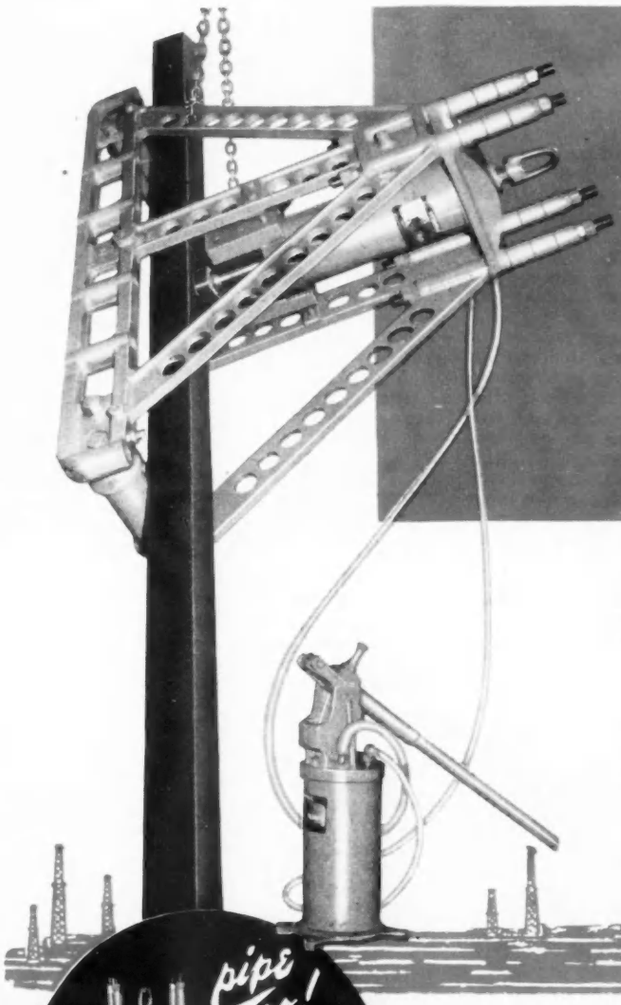

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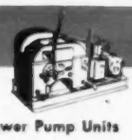
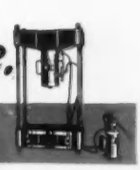

Power Pump Units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C SW SW PSL 6, south portion of the Keystone-Ellenburger area, unloaded while pulling on drill-pipe stuck at 8519 feet in the McKee zone of the Simpson for an estimated flow of 50 million cubic feet of gas with a spray of oil and water. While the Simpson has indicated commercial production on drill-stem tests made by Ellengurber projects, this is the first instance that the zone carries a prolific volume of gas. Gulf's Keystone 75-E, north offset is credited with having established a new drill-time record for the deep zone in completing in 4 months and 3 days after spudding. This well flowed 2098 barrels of 44.5-gravity oil, with gas-oil ratio of 1411/1, natural through ½-inch choke, from open hole at 9631-810 feet. It is bottomed in granite. Development of the Ellenburger zone is showing a slight increase since the first of the year. Currently the field has 27 drilling, 6 in process of completion, 1 rig, and 3 locations.

**Yoakum County:** Honolulu Oil Corporation's Hovencamp 9, C W½ of W½ NE¼ Sect. 890 and 2¼ miles northeast of the Wasson field's Clear Fork 2-pay area, was drilling below 7900 feet on 10,000-foot Basal Permian objective. A drill-stem test at 7603-7800 feet returned 135 feet of oil and gas-cut mud. The Glorietta was entered at 5830 feet, with elevation 3572 feet.

**Gaines County:** Amerada Petroleum Corporation's Jones 1-C, ¾ mile southeast of its Jones Ranch field discovery, entered the Wolf Camp porous zone at 9106 feet, or 30 feet low, and tested sulphur water at 9165 feet. The Tubb zone was topped at 7230 feet, or 6 feet high. The company's Jones 1-B, ½ mile west of the discovery, was drilling lime at 7795 feet. Argo Oil Corporation's Jones 1-E was drilling at 8420 feet.

**Ector County:** The Texas Company's Connell 29, 1½ miles west of the Penwell field, and a failure in the Ellenburger at 9525-9675 feet, tested dry after using acid through perforations at 7780-820 feet in Devonian, topped at 7048 feet. Most promising production outlook is from the 7200-foot Devonian and the 4600-foot Holt zones.

Amerada's T. P. Land Trust 1-A, C NW NE T&P Ry. 19 and on the west side of the TXL field, showed promise of making a flowing well after a 120-quart nitro shot at 8090-8140 feet in Devonian, topped at 8050 feet, or 77 feet low to the east offset. This is the first nitro shot for the field, and lumps of Devonian, measuring 1 inch in diameter, were recovered in cleaning out by the reverse circulation method. The Superior Oil Company's Cochran 1, C NE NE T&P 30 and also on the west side of the field, squeezed perforations at 8090-8100 feet in the Devonian, topped at 8048 feet, or 32 feet low to the north offset, after swabbing a small volume of oil and salt water. Higher perforations are expected to result in a small producer. Phillips Petroleum Company's T. P. Land Trust 1-E-a, 1 1/8 miles southeast of the most southerly Devonian producer and across the fault, tested salt water in the Devonian at 8998-9050 feet, and was drilling at 9250 feet.

**Dawson County:** Seaboard Oil Company's Lee 1, discovery for the Jeter prospect, was awaiting official gauge after pumping 341 barrels of fluid, averaging 3 per cent bottom sediment and 3 percent fresh water, on a 48-hour test. It is rated a 100-barrel well. Production is from broken lime at 3737-95 feet in San Andres, topped at 3500 feet.

**Crockett County:** Magnolia Petroleum Company's Shannon 1-A, C NE SE GC&SF Ry. 24, Block Q, projected 5000-foot test and 2½ miles east by north of production, was to resume drilling after recovering tools lost at 2375 feet. This wildcat filled 250 feet with oil while fishing. The Yates was entered at 1245 feet and Grayburg lime at 2025 feet, with elevation of 2575 feet.

Moore Exploration Company et al's Halff-Bivins 1, SWc I&GN Ry 65, Block 1, and 1¾ miles southwest of the Noelke shallow field, swabbed 1 barrel of oil hourly after using 2000 gallons of acid through Middle Clear Fork perforations at 3370-94 feet. Additional acid treatments will follow. This prospect recorded a low structural position for the area in drilling to water in the Ellenburger at 7222-7512 feet.

Francis A. Callery et al's Shannon 14, near C NW NE GC&SF 27 and on the northeast side of the Todd-Ellenburger area, was considered a failure through having failed to reach the Ellenburger in drilling to 6350 feet. It is lower structurally than a failure ¾ mile northwest. The partnership's Shannon 8, C NE SE Sec. 27, recorded the highest Ellenburger in entering this zone at 5766 feet, and was coring pay at 5890 feet. Amerada et al's Todd 4-B, C SW SE Sec. 26 and ¼ mile west of Ellenburger production, indicated a 50-barrel well in the Crinoidal, but will complete from Ellenburger perforations at 6190-6230 feet.

## ☆North Texas

### *Grayson County Deepened Discovery Logs Oil Sand*

Grayson County deepened discovery logs oil-saturated sand in the Oil Creek; Sivels Bend deep test reaches Ellenburger; Montague County lists 3 wildcat failures.

**Grayson County:** Denver Producing & Refining Company's Jewell 1, southwest corner of Wm. H. Allen Survey A-15 and in the northwest sector of the county, entered the Oil Creek, Basal Simpson, at 8465 feet with elevation of 687 feet, and is credited with having 20 to 30 feet of oil-saturated sand. The test is drilling shale below 8496 feet, and is scheduled to continue to the Ellenburger. This wildcat opened the Sadler 1-well pool as a small pumper from the Strawn at 7160-7210 feet in 1942, having plugged back from 8403 feet. Deepening operations, started last October, were delayed because of having to sidetrack at 7280 feet. No drill-stem test has been made of the new pay because of the sidetracked hole. The Pure Oil Company's Little 1, 1¾ miles southwest of Gordonville and a failure in Ellenburger at 9479-9919 feet, tested a nominal volume of oil and gas from the Lower Simpson series.

Standard Oil Company of Texas' Mitchell 1, J. B. McAnair Survey and near the Sherman townsite, was drilling shale at 4390 feet, and is contracted to 12,000 feet or water in the Ellenburger.

**Cooke County:** Standard Oil Company of Texas' Beasley 2, south end of the Sivels Bend field, is credited with having entered the Ellenburger at 8640 feet with nominal oil staining at 8731-40 feet. However, a drill-stem test at 8729-40 feet proved dry. The test was drilling dolomite at 8810 feet. The Pre-Pennsylvanian detrital was logged at 7890-8120 feet followed by dry Simpson beds. This structure is of such proportions that a single Ellenburger failure would not be decisive in determining if the Ordovicion beds are productive.

Sun Oil Company's Midkiff 1, east offset to its Allen 1, which opened the 6280-6300-foot Strawn oil zone on the southeast side of the Sivels Bend field, recovered 2120 feet of oil and 30 feet of oil-cut mud when tester was used at 6276-6303 feet. Water sand was believed to have been reached in coring to 6309 feet, where a drill-stem test is pending. Eight rigs are in operation, all offsetting production. A 1¾-mile west extension and across the Red River in Oklahoma will be drilled by The California Com-

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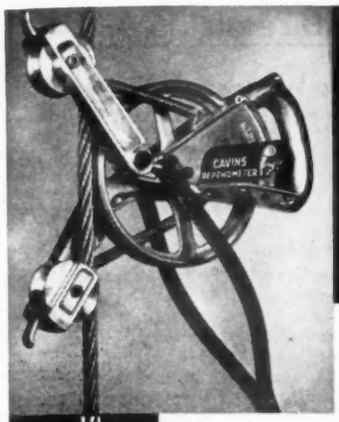

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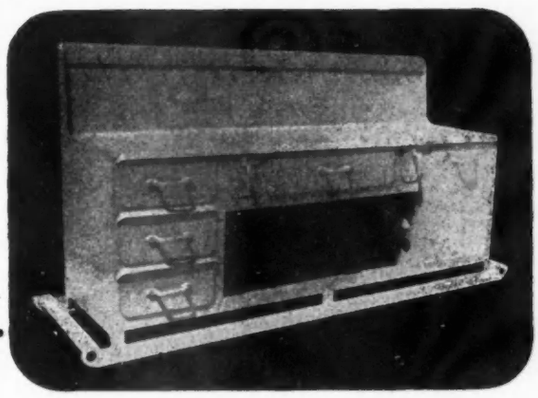

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pany in W. T. Wright 1, C NE NW 13-8s-1w, on a fractional section.

**Montague County:** S. D. Johnson et al's Rich 1, W. S. Harkin Survey and 3 miles northwest of Belcherville, was abandoned at 6033 feet in Ellenburger, topped at 5968 feet. This wildcat entered the Bend at 5545 feet, and tested minor oil and gas showings at several levels. It is 1⅝ miles northwest of Johnson et al's Crenshaw 1, recently completed pumper at 5550-65 feet. Johnson et al's Gibson-Jennings 1, Block 77, Kaufman County School Lands, was abandoned at 4383 feet. A. R. Dillard's Walker 1, 1½ miles west of the North Stoneburg field, was abandoned at 6310 feet, having entered the Bend at 6025 feet, about 135 feet low.

Fred M. Manning, Inc.'s Sewell 1, Block 184, J. P. Owensby Survey and 1 3/8 miles northeast of the Hildreth field north extension, entered the Bend at 5912 feet, being considerably higher than nearest wells, and was drilling shale at 6225 feet. The conglomerate pay was not encountered.

**Young County:** L. T. Burns et al's Dunagan 1, 15/16-mile north of the Crain 3-well field and 50 feet low structurally, was preparing to test with 5½-inch at 5238 feet and bottomed at 5253 feet.

### *Texas Field Named*

Humble Oil & Refining Company's discovery opened by Henry Schorsch 1, M. Estes Survey 1188, Atascosa County, South Central Texas, has been named the Jourdanton field, Don O. Chapell, chairman of the Oil Field Nomenclature Committee, South Texas Geological Society, has announced.

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## ☆ East Texas

### *Hopkins Wildcat Completing As Gas-Distillate Producer*

Hopkins County wildcat completing as gas-distillate producer from the Gloyd; Sand Flat field outposts prove disappointing; Boggy Creek field deep test nearing Travis Peak.

**Hopkins County:** Delta Drilling Company's Livington 1, 5 miles west by south of the Pickton field, confirmed production indicated by a drill-stem test before fulfilling depth contract at 8642 feet by producing an ungauged volume of gas-distillate and rotary fluid while cleaning itself after using 5000 gallons of acid. This production is from Gloyd perforations at 8005-32 feet. Pressure on casing built up to 1800 pounds.

**Anderson County:** Humble Oil & Refining Company's Todd 1, Boggy Creek field, prepared to core after drilling Rodessa section to 10,722 feet. No shows have been recorded. The company's Freeman 1, Brushy Creek prospect, entered the Goodland at 7126 feet and Paluxy at 7469 feet, and was drilling at 8580 feet.

**Bowie County:** Barnsdall Oil Company et al's Pickering 1, R. E. Sevey Survey and a Smackover prospect, was drilling Glen Rose shale at 4760 feet. The Walnut clay was entered at 2760 feet and Paluxy at 2825 feet with elevation of 299 feet. Sohio Petroleum Company and Phillips Petroleum Company have an interest.

**Rains County:** Sohio's Butler 1, E. Gideon Survey, was reaming to set protection string of 9-inch casing while bottomed at 8323 feet. The hole has been cleaned out after a long fishing job.

**Smith County:** Humble's Ramey 1, J. G. Garrett Survey and 2100 feet east of the Sand Flat field with an intermediate failure, tested dry from Paluxy perforations at 7294-7322 feet and will reperforate at 7085-7102 feet. Skelly Oil Company's Shaw 1, Wm. Keys Survey and northwest of the field, was abandoned at 7654 feet in Paluxy topped at 7300 feet. The company previously drilled an 8047-foot Glen Rose failure to the north on the Wiley-Pure tract.

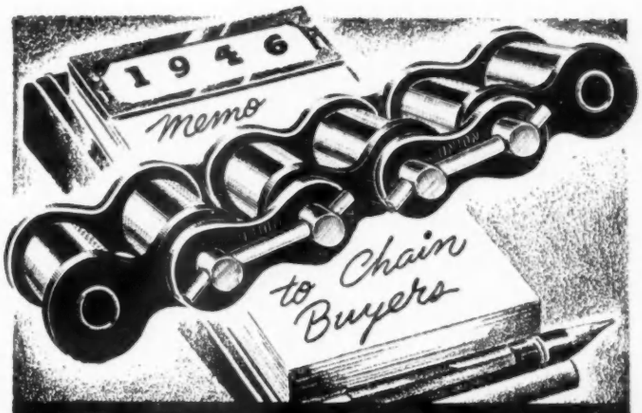
Humble's Pool 1, indicated Paluxy discovery for the Mount Sylvan area, remains shut down in Glen Rose at 7601 feet after setting pipe through the oil zone. Title difficulties involving the drilling site may postpone completion indefinitely.

## ☆ East Texas Border

### *Harrison County Prospect Is Nearing Contract Depth*

Harrison County prospect nears contract depth; Whelan outpost prepares to test; Jefferson area well tests gas-distillate; Shelby County deep wildcat fishing; Marion County prospect drilling toward 10,000-foot goal.

**Harrison County:** R. W. Williams' J. M. Furrh Estate 1, Francis O'Neil Survey, wildcat 3 miles west of Elysian field, is drilling at 6765 feet toward a 6800-foot goal. The well is said to have good production possibility in the Travis Peak from 6249-59 feet. A 10-minute

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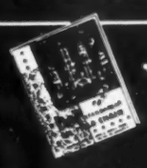

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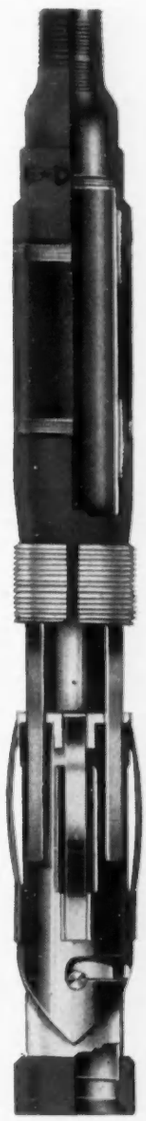

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drill-stem test at 6290-6304 feet recovered water cushion with about 2 gallons of 45-gravity oil on top. Operators will run electric survey when contract depth is reached.

On an eastward trend from the Furrh 1, Bert Fields et al's J. M. Furrh 1, wildcat in the L. Womack Survey, is near 5000 feet.

Placid Oil Company's Mattie Lee Knox 1, Benjamin Parker Survey, possible Whelan extension, 3 miles southwest of Harleton, is at total depth of 8300 feet, with 5½-inch casing on bottom, and is preparing to make production tests.

Rogers Lacy's Scott 1, Alex Johnson Survey, 2½ miles southwest of Jefferson, tested 4½ million cubic feet of gas per day with no estimate on distillate. Perforations from 5906-14 and 5922-38 feet was acidized with 2500 gallons of acid. Testing will continue.

**Shelby County:** Humble Oil & Refining Company has encountered a fishing job in its deep wildcat, Pickering Lumber Company 1, St. Francois Survey. The well is at 12,221 feet, but has not had commercial showings.

Hiawatha Oil Company has abandoned its wildcat Pickering Lumber Company 1, W. J. Brittian Survey, at 5913 feet.

**Marion County:** Magnolia Petroleum Company is drilling deeper in S. L. Orr 1, R. B. Fowler Survey, and is below 8253 feet in sand and shale. Commercial production has already been indicated in the Travis Peak from 7577-86 feet by drill-stem test.

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## ☆ South Central Texas

### *Wildcat in Atascosa County Has Flow of Gas, Condensate*

Atascosa County wildcat condensate production; Humble sets pipe in Jourdanton well; Tanglewood wildcat drilling after production test.

**Atascosa County:** Quintana Petroleum Corporation's O. Muil 1, wildcat in the J. M. Mattison Survey 467, is flowing an ungauged amount of gas and condensate from 100 feet of open hole below 5½-inch casing set at 8836 feet.

Humble Oil & Refining Company's A. N. Moursand 1, new test in the Jourdanton area, Edward Estes Survey 1188, set 9⅝-inch pipe at 3011 feet and is drilling below 3030 feet in hard sand. Location is about a mile from Humble's Henry Schorsch 1, gas discovery well.

**Lee County:** Humble's George W. Vick 1, Tanglewood area wildcat in the Bethel Smith Survey, was drilling cement plug after squeezing 60 perforations at 6060-75 feet where an unsatisfactory production test was made previously. This test gauged approximately 100 barrels of fluid and 1,080,000 cubic feet of gas daily through 3/16-inch choke with 1725 pounds tubing pressure. Operator set 9⅝-inch pipe at 6101 and the well is drilling below 6435 feet in broken lime.

**Bexar County:** Chenoweth & Harroun's Max Blum 1, deep test in the Gas Ridge field in the M. F. Rodriguez Survey is coring below 7800 feet with no reports on formations encountered.

## ☆ Southwest Texas

### *Starr Receives Producer in Rincon Field Extension Area*

Starr County has oil producer in the Rincon field extension area; Duval County wildcatting remains active.

**Starr County:** The Harrus Syndicate's Garcia 2-A, Parsons extension area of the Rincon field, has been completed for 128 barrels of 44.2-gravity oil, no water, through ⅛-inch choke. Tubing flow pressure was recorded at 250 pounds with casing pressure 650 pounds. The sand was reported topped at 3310 feet with total depth 3560 feet.

**Webb County:** Sun Oil Company's Isaac Hirsch et al 2, wildcat 26 miles northeast of Laredo, is drilling below 5100 feet.

**Duval County:** Swanie Robertson's E. R. Hagist 1, new wildcat 20 miles north of Freer in the BS&F Survey 124, is under contract to Fritz Volnering for 3000 feet.

Rowan & Hope of San Antonio have located a wildcat 3 miles north of Rosita on a 240-acre lease in the Poitevent Survey 549. This is The Duwel Company 1 on which drilling is scheduled to begin immediately for a contract depth of 2600 feet.

Southern Minerals Corporation's Juan Benavides 1, wildcat in the El Mesquite Grant between lots 10 and 36, is drilling below 600 feet after setting 138 feet of surface casing. Proposed depth is 3500 feet.

## ☆Lower Texas Coast

### *Wildcat Spotted in Willacy; Sun's Brooks Wells Tested*

New wildcat located in Willacy County; gas and condensate indicated in Bee County wildcat; Sun makes tests on new wells in Brooks County, new sand discovered in Los Indios area; oil producer completed in Refugio County.

**Willacy County:** Dan Auld of San Antonio has located a wildcat on a 97.8-acre lease 1½ miles east of San Perlita in the Hardin-Gill subdivision. This is Dan Auld-Harvey Geis et al 1 and is slated for 9500 feet.

**Bee County:** Mills Bennett's Martha Berger et al 1, wildcat 2 miles southwest of Tuleta, indicates gas and condensate production in the Slick and Luling zones. A log was run at 8575 feet and the bit is now nearing the proposed bottom at 8850 feet. Operators plan to set a liner for completion.

**Brooks County:** Magnolia Petroleum Company's Church of the Brethern Unit 2, La Gloria field, is drilling below 7850 feet.

Sun Oil Company's Mrs. Mary M. Lasater 3-B, wildcat 4½ miles southeast of Falfurrias, squeezed perforations at 4141-44 feet after an unsatisfactory test and is drilling at 4300 feet. Operator set 7¾-inch casing at 4147 feet.

Sun's Villarreal 1, west of Encino in the Rachal area, was testing from perforations in the 5200-foot sand. Total depth is 7500 feet with 5½- inch casing set at 6181 feet.

**Hidalgo County:** Baldridge & King's W. L. Goldston 2, Los Indios area of the Santa Anita Grant, discovered a new sand for the field when tests through perforations at 6030-58 feet showed gas and condensate. The well is shut in pending completion plans. Total depth is at 8449 feet and 5½-inch pipe has been set at 6987 feet.

**Refugio County:** Fred W. Shield, Allen & Morris' C. E. Heard et al 1, Refugio-Heard area, was completed for 69.75 barrels of 36-gravity oil daily through 3/32-inch choke with 2325 pounds tubing pressure and 1250 pounds casing pressure. Production is from perforations at 6217-20 feet.

## ☆Upper Texas Coast

### *Trinity County Deep Wildcat Being Retested by Magnolia*

Magnolia retesting Trinity County deep wildcat; Gulf locates new test well on west flank of Pierce Junction field; protective string set in Madison County wildcat.

**Trinity County:** Magnolia Petroleum Company's Bolton 2, wildcat 3 miles west of Glendale, is drilling out cement in preparation to go to the Rodessa section for another test after squeezing off perforations at 10,550-60 feet in the Edwards lime where a drill-stem test gauged an estimated flow of 500,000 cubic feet of gas. Seven-inch pipe was set at 10,642 feet with total depth 12,505 feet.

**Harris County:** John W. Graham's S. Minchen 1 in the Pierce Junction field, J. A. Williams Survey 1028, was completed with 24 shots at 4694-4702 feet for 77 barrels of 29.4-gravity oil and 0.1 percent water through ⅛-inch choke with 500 pounds tubing pressure. The hole is 4711 feet deep with 5½-inch casing set at 4764 feet. Three sands showing oil were reported at 3812-40 feet, 4060-72 feet and 4693-4711 feet.

Gulf Oil Corporation's C. S. Settegast et al 2 has been located 300 feet east and slightly north of the Settegast 1 dry hole in the Joseph Kopman Survey on the west flank of the Pierce Junction field. This test is scheduled for 11,000 feet. The first well was abandoned last year after reaching a total depth of 10,742 feet, where salt was encountered. The new test will be somewhat closer to the dome.

**Matagorda County:** Skelly Oil Company has staked Gregg Lawrence 1, wildcat in the Sugar Valley area. The new test is on a 227.3-acre lease in the P. Burnett & A. S. Sojourner Survey, and is about 2500 feet north and slightly west of Superior-Blaffer's Peterson 1, discovery well for the area.
of sandy lime below 6880 feet.

**Madison County:** West Production Company & Noranda Oil Company's H. M. Boring 1, wildcat in the Amy Boatright Survey near Madisonville, set a 7-inch protection string at 9515 feet. The Edwards lime is expected near the 10,000-foot level.

**San Jacinto County:** Fred M. Manning, Inc., continues to drill below 9900 feet in its Central Coke & Coal Company 1, wildcat in the Ferguson Survey, and is scheduled to go to 11,000 feet. In a 25-minute drill-stem test made at 8367-87 feet through a ¼-inch choke, 3000 feet of salt water and a slight show of oil were recovered.


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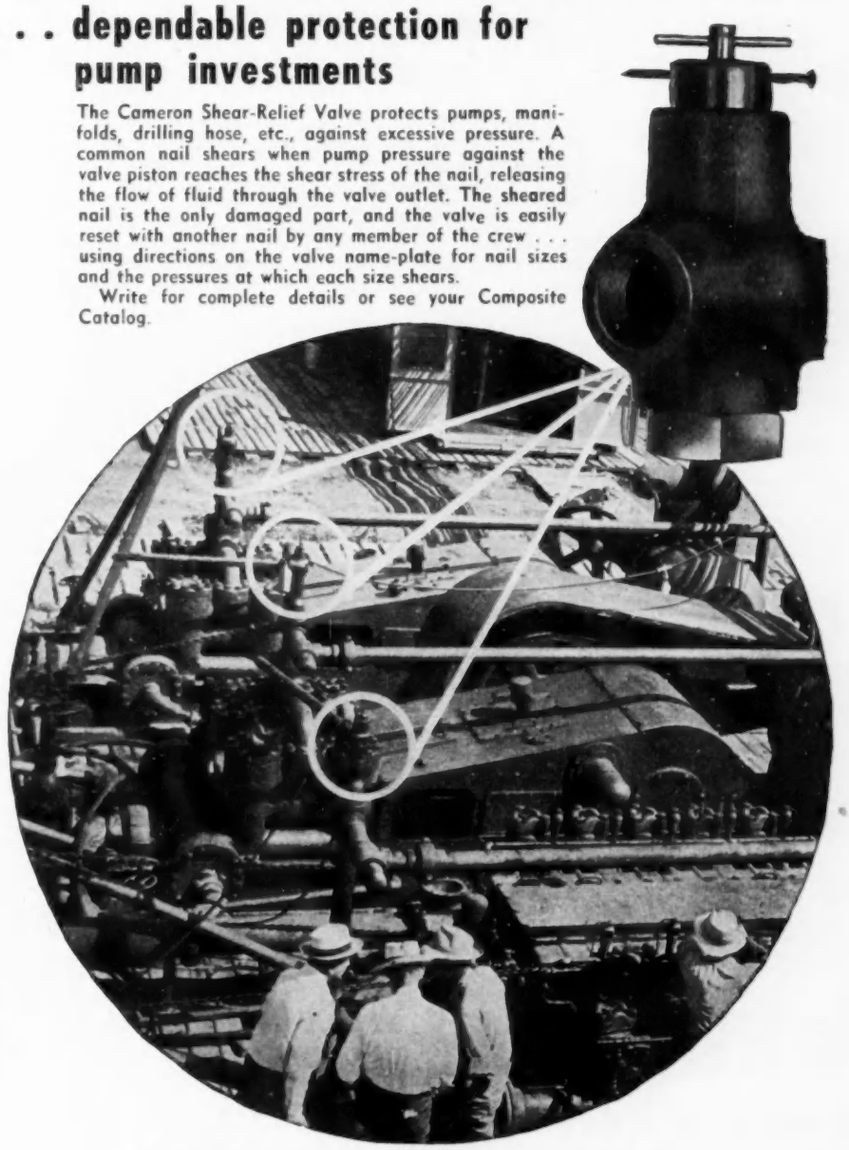

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## ☆ South Louisiana

### *Completion Attempt Is Made On Hahnville Area Prospect*

Union Oil opens production in the Hahnville area; Magnolia ready for production tests on 2 wildcats, stakes another to increase exploration in Beauregard Parish.

**St. Charles Parish:** Union Oil Company of California is attempting to complete Milliken & Farwell 1, Hahnville prospect in 26-12n-20e. Perforated at 8776-85 feet, the well flowed 80 barrels of clean oil through a ¼-inch choke with tubing pressure varying from 0 to 110 pounds before finally dying after flowing 24 hours. Operators are pulling the tubing in preparation to reperforate in the same zone for the third time. First test in this sand gauged 166 barrels of 33-gravity oil daily. Five and one half-inch pipe is set at 8897 feet with total depth 9981 feet.

**Beauregard Parish:** Magnolia Petroleum Company's Lutcher-Moore Lumber Company 2-C, wildcat in the Pinegrove area, 22-5s-11w, set 7-inch casing at 7700 feet and is being tested for production after squeezing cement into the formation at 7646-48 feet. The Wilcox was topped at 9950 feet in the 11,618-foot hole.

Magnolia's M. J. Witski 1, wildcat at Oretta, NW 22-6s-11w, is also being prepared for production tests after squeezing off the water level through perforations at 8410-12 feet. A slight show of oil was reported at 7952-55 feet in the 8969-foot hole. Five and one half-inch casing was set at 8700 feet.

Magnolia has located Lutcher-Moore Lumber Company 2-D, a wildcat for the Mystic area, 6-6s-11w, projected to 10,500 feet.

Sun Oil Company's Rice Land & Lumber Company 1, 32-4s-11w, is reported to be coring below 12,450 feet in hard shale.

**Lafayette Parish:** Shell Oil Company completed Breaus-Kilchrist Unit 1, 65-8s-4e, in the east extension area of North Cankton field for 55 barrels of 54.4-gravity condensate daily from perforations at 10,916-66 feet through 7/64-inch choke under 3550 pounds tubing pressure. Five and one half-inch casing was set at 11,057 feet in the 11,101-foot hole. Previous drill-stem tests from sands at 10,644-62 feet gauged 25 barrels of condensate and 1,089,000 cubic feet of gas at 3500 pounds working pressure.

**Calcasieu Parish:** Union Oil has completed F. H. Gray Subdivision 2-D, 33-10s-12w, at Vinton, for 135 barrels of 32.6-gravity oil and 51,000 cubic feet of gas through 9/64-inch choke with 650 pounds flow pressure on the tubing and 750 pounds pressure on the casing. Production is from open hole at 5118-32 feet.

Max Pray's Elizabeth Yust 2, 28-10s-1w, wildcat in the Hackberry zone, set 9⅝-inch protective casing at 7921 feet and is now drilling.

**St. Mary Parish:** Humble Oil & Refinning Company's E. F. Marin 4, 20-13s-4e, in the Bayou Sale field, abandoned in 1942 after drilling to 11,745 feet, has been reworked and completed for 151.5 barrels of 36.5-gravity oil daily through a 9/64-inch choke. The original hole was sidetracked and redrilled to 10,525 feet with 5½-inch casing set at 10,511 feet and perforated at 10,421-28 feet for the completion.


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## ☆ North Louisiana

### *Bossier Wildcat to Get Test; Natchitoches Strike Finaled*

Bossier wildcat preparing to test; Benton field outpost started; Natchitoches discovery finaled; North Shongaloo gets second and better producer; Hico field second producer completed; deep Sabine wildcat fails, new test starting; second new wildcat started in Richland Parish.

**Bossier Parish:** H. C. Owens' wildcat, Skidmore 1, C NE SE 1-16n-11w, is preparing to test zones indicating gas-distillate, gas and oil, and is running casing at 5365 feet. A 20-minute drill-stem test at 5326-45 feet, using ¼-inch chokes, had a slight blow and recovered 105 feet of slightly oil-cut mud. An earlier core recovered lime with gas-distillate odor.

Barnsdall Oil Company-Sohio Petroleum Company's wildcat, Carter-Burton 1, C NW NW 26-23n-13w, continues drilling below 7810 feet, after having reported showings in the Pettit and Travis Peak. Barnsdall-Sohio-Continental Oil Company's Crystal Oil Refining Company 1, 28-21n-11w, is below 5937 feet.

Barnsdall and Sohio are starting 2 new tests in the Benton field: Annie O. Hughes, C NW SE 6-20n-12w, ¾ mile north of the J. T. Hanks 1 discovery well; and Jones Coleman 1, C SE NW 21-20n-12w, 1 mile southeast outpost to G. H. Vaughn's Katie Odon Padgett 1, first oil producer for the field. Both tests may go to 9500 feet.

**Natchitoches Parish:** M. T. Halbouty completed his Ashland field discovery, C. L. Detro 1, 1-13n-8w, for an initial production of 102.5 barrels of fluid, 10 percent salt water, on 11/64-inch choke. Gravity of oil is 26.4. The well is producing from the Woodbine through perforation from 3288-94 feet, with total depth 3301 feet.

**Caddo Parish:** Union Producing Company's deep wildcat Noel Estate A-1, 11-19n-16w, is waiting on cement at total depth of 8531 feet. The well indicated Travis Peak production possibilities.

**Webster Parish:** Hunt Oil Company completed the second producer for the North Shongaloo field, Mrs. O. G. Roberts 1, C NW SW 11-23n-10w, flowing 153 barrels daily through ¼-inch choke from the Pettit lime. Production is through 20 perforations from 5702-09 feet and 20 perforations from 5716-20 feet. Perforations were acidized with 8000 gallons. This is better than the discovery well, completed in June, 1945, for 90.88 barrels per day, and which is now on pump, producing 60-65 barrels daily.

**Lincoln Parish:** The California Company's Mary Lou Caver 1, C SW SW 11-19n-4w, is the second producer in the Hico field. Initial production is 96 barrels of 54.6-gravity distillate and 3,400,000 cubic feet of gas per day through ¼-inch chokes.

**Sabine Parish:** Union Producing Company is starting a 10,000-foot wildcat northeast of the shallow Zwolle field. It is Louisiana Long Leaf Lumber Company 1, C SW SW 29-8n-11w.

The Carter Oil Company abandoned its deep wildcat, Pickering Lumber Company 1, SE SW 14-4n-11w, at 9495 feet in the Lower Cretaceous with no showings of oil or gas.

## ☆ Arkansas

### *Patton Field Gets ¾-Mile Extension from Oil Producer*

Patton field extended by oil producer; Miller County wildcat showing salt water in cores; Atlanta field producer completed.

**Lafayette County:** Mid-Continent Petroleum Corporation's O. S. Moore 1, C SE NW 33-17s-24w, which extends Patton field production ¾ mile, gauged on initial production test 140 barrels of 45-gravity oil in 9 hours, or 373 barrels per day through 12/64-inch choke on tubing, through Smackover perforations at 9316-19 feet. Gas-oil ration was 970/1.

**Miller County:** G. Anthony et al's W. A. Smith 2, 24-15s-26w, is below 4210 feet. Cores from 3457-64 and 2446-49 feet recovered sand showing salt water.

**Union County:** The Carter Oil Company was ready to test Powell et al 1, 33-16s-18w, Salem Church area, for Smackover lime production possibilities. The lime was topped at 6969 feet by samples, but was tight, indicating little permeability.

**Columbia County:** Atlanta field, the most active in Arkansas, had another producer as Placid Oil Company completed W. T. Beene 1, C NE NE 17-18s-19w, flowing 120 barrels of oil per day through ⅛-inch choke. Production is from the Cotton Valley, perforated with 48 shots from 7100-12 feet. Pay horizon was topped at 5980 feet. Smackover lime, topped at 8239 feet, showed porosity at 8266 feet, but was not tested. Production casing was cemented at 7211 feet, with total depth 8270 feet.

Deep Rock Oil Corporation was preparing to test J. S. Pittman 1, C NW SE 17-18s-19w, Atlanta field, Smackover field. Smackover lime indicated porosity at 8253 feet. The well is at 8320 feet with 5½-inch casing set on bottom.

## ☆ Mississippi

### *Tinsley Test Said to Have Shows in Lower Horizons*

Tinsley field deep test reported to have encountered good shows in lower horizons; Adams County wildcat rumored to have struck oil sand of good thickness; Brookhaven field gets new producer.

**Yazoo County:** C. F. Urschel, Agent's Slick Estate 25, SEc 35-11n-3w, Tinsley field, is reported to have struck an encouraging sand section in the lower Cretaceous at 6431 feet. The well has been extensively cored to its total depth of 7617 feet and developments in the 6400-foot zone are reported to have recovered oil stains and odor indicating commercial potentialities. Depth of the sand section was reported to be about 30 feet. In subsequent cores taken below the section salt water was noted and drillers are now retesting the oil zone. Original producing section of Tinsley was the Woodruff sands below 4700 feet, but as production from this zone dwindled many wells were deepened to the 5200-5400 foot zone of the Perry

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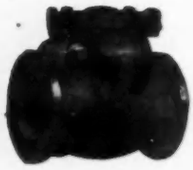

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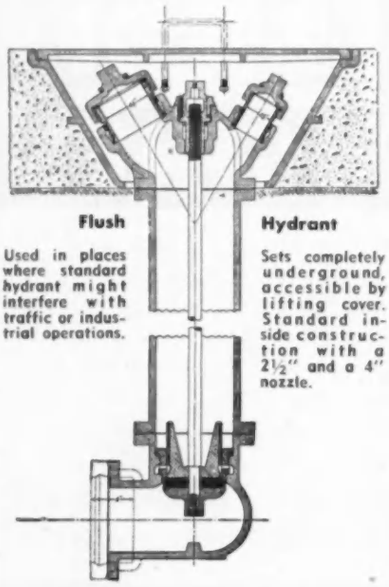

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and Lammons sands and developed at that point. Thirty-three wells were thus deepened in 1945. The Brumfield sand at approximately 5700 feet also gave evidence of good production. The Slick Estate 25, however, is the first deep test made since the drilling of Union Producing Company's Jennie Stevens 21 last fall which bottomed below 11,000 feet. The Stevens tested the Smackover horizon extensively in the lower depths but had only a few shows of sour gas.

**Adams County:** Phillips Petroleum Company's Davey 1, 46-8n-2w, deep test about 8 miles northeast of Natchez, continues to be rumored as a good potential producer. No official information has been released but reports have it that a producing section 46 feet thick has been cored in the Tuscaloosa horizon below 10,000 feet. This is the producing depth for many of the Cranfield field wells in the same county. It is rumored that a sand section was struck at 10,055-85 feet and another at 10,091-110 feet. The area is getting a good play with leases going up to $200 per acre. Phillips owns the rights on approximately 4100 acres around the Davey, while the British-American Oil Producing Company has acreage to the south.

Roeser & Pendleton-Sohio Petroleum Company's Baker Maier 1, 34-6n-2w, assured producer about 8 miles southeast of Natchez, has been held up by bad weather, but has set casing to 10,635 feet. On a previous drill-stem test with packer at 10,495 feet fluid hit the surface in 55 minutes and the well flowed oil of approximately 40-gravity, but salt water production gradually increased to 65 percent. In the Cranfield field The California Company has completed 2 more good producers. The Ella G. Lees 8, 29-7n-1w, which reached 10,305 feet, flowed 299 barrels of oil per day from 240 perforations at 10,246-286 feet opposite the Marine Tuscaloosa sand section. Gravity of the oil was 39.6 and gas-oil ratio 1075/1. The George W. Armstrong 1, 27-7n-1w, was also completed with production coming from the same section as the Lees and in its initial production test the well flowed 261 barrels of 39.6-gravity oil per day.

**Lincoln County:** Roeser & Pendleton's Nora Smith 1, NW SE 8-7n-7e, Brookhaven field, has been completed for the area's first new producer in some time. The well was drilled to 10,372 feet and tubing run to 10,291 feet. Production is from the lower Tuscaloosa horizon below 10,187 feet and on initial test the well produced 99 barrels of 37-gravity oil per day through ¼-inch tubing choke. In the second test of the pool Sun Oil Company's Case Heirs 1, SW SE 8-7n-7e, indicated commercial production although a drill-stem test at 10,274-84 feet in the Marine Tuscaloosa horizon failed. Previously, about 4 feet of sand with good saturation were cored at 10,279-84 feet and a drill-stem test at 10,274-79 feet recovered 30 feet of mud cut with oil.

**Jeff Davis County:** Humble Oil & Refining Company's Andrew Barnes 1, NEc SE 24-7n-18w, salt dome test, has been abandoned at a total depth of 7369 feet in salt. No shows were reported at any point. In the Gwinville field Gulf Refining Company's Vinnie Walker 1, NWc NE SW 34-9n-19w, attempted field extension, had encouraging shows from core tests from the Tuscaloosa horizon below 8116 feet. Cores taken at 8194-8204 feet showed good porosity with fair gas odor, while those at 8204-11 feet recovered sandy shale with fair odor. Gulf's M. W. Berry 1, NWc SE NW 13-9n-19w, same field, is drilling below 1927 feet after setting casing to 1708 feet.

### Alabama

J. H. Deason's DeBardelaben 1, se nw 6-14s-5w, Walker County, the state's only active prospect, was preparing to resume drilling after running casing to 1215 feet.

Glen D. Rose Oil & Gas Company's First National Bank of Birmingham 2, 30-12s-7w, shut down on account of weather after reaching a total depth of 1637 feet.

### Florida

O. D. Robinson's State Well 1, NEC NW 29-59s-40e, Monroe County, wildcat, is drilling below 8650 feet in the lower Cretaceous after finally restoring circulation. No shows have been reported.

Gulf Refining Company's State 1, swc 2-67s-29e, wildcat, is drilling below 126 feet in lime. Core tests have recovered nothing encouraging.

**Lafayette County:** Sun Oil Company's Crapps 1, sw ne 25-6s-12e, is drilling below 3862 feet after a drill-stem test at 3300-20 feet recovered only mud and water.

## ☆ Rocky Mountain Area

### *Limits of Cat Creek Field In Montana Are Explored*

Limits of Cat Creek field probed; South Elk Basin produces oil and gas; Weld County wildcats hold attention.

### Montana

Rising tempo of activities at Mosby Dome, Petroleum County, is being supplemented by many tests of border locations and other areas on the outskirts of the Cat Creek anticline. Operators include Continental Oil Company; Dave Schrock, who brought in the discovery that opened the Madison (Ellis) horizon; Bill Hanlon, who is starting 2 wildcats in the East Dome section; Val Kirk of Frannie, Wyo.; Spencer Petroleums, and Spencer & Livingston, whose New Year's Day completion now is flowing 600 barrels a day.

### Wyoming

Continental's Northern Pacific 2 is pumping 180 barrels of oil daily and new pumping equipment is being installed. This new well in South Elk Basin shows that the important extension of Elk Basin is an oil field as well as a gas field.

### Colorado

Several prairie wildcats are holding attention, including R. S. Shannon's Weld County test in the old Greasewood Flats area where a changeover is being made from rotary to cable tools to drill in the Colorado Unit Oil Corporation's Kirchof 1. On the far side of the state, the deep test of The Texas Company-The California Company in Wilson Creek, Rio Blanco County, has been bottomed at 12,702 feet and testing of the top of the Weber sand is now under way. So far results are not encouraging, despite heavy Weber production at nearby Rangely field, and it is likely that the well will be plugged back to the Madison and completed as a gas injection well.

## ☆ Michigan

### Montcalm County Test Flows 56 Barrels After Acidizing

Montcalm County strike flows 56 barrels of oil after acidizing; Midland County chemical brine test has gas showings in Salina beds; proration hearing set.

**Montcalm County:** First new oil field prospect for 1946 in Michigan, Sohio, Union and Barber's Douglas 1, NW SW SE 3-12n-8w, Cato Township, averaged 56 barrels of oil, flowing by heads, the first 3 days after a 100-gallon acid treatment in Monroe at 3554½ feet. Natural well swabbed up to 8 barrels oil.

Production is from the so-called "Reed City" zone of the Monroe, approximately 100 feet below top of the Dundee limestone.

The outpost is 3 miles east of a disappointing discovery well drilled a year ago and 3 miles southwest of the Six Lakes shallow Stray sand gas field.

**Midland County:** A chemical brine test being drilled for Dow Chemical Company near the corporation's plant at Midland in 24-14n-2e indicated free gas in the Salina beds between 8000-8132 feet. As brine tests can be and are drilled without state permits, such as apply to oil or gas wells, little accurate information has been obtained by the industry on the reported gas showings. It is the deepest brine test on record in the state and is still being deepened.

The reported gas show was viewed as significant in view of the test's location, about 12 miles west of Gulf Refining Company's Bateson 1, 2-14n-4e, which produced 7 million cubic feet of gas and distillate in the Salina at 8000 feet.

**Proration:** February 14 has been set as a tentative date for a state-wide proration hearing when special emphasis will be placed on the Deep River field in Arenac County.

Operators, claiming to represent more than 60 percent of the production in the field, petitioned the Department of Conservation to abandon the present pool-wide system of proration and restore a flat individual well allowable plan of 100 barrels per day per well.

Under the pool-wide system, total field runs have been leveled at a maximum of 4000 barrels daily. The individual well pro rata take announced for the last half of January is 60 barrels. Scheduled completions are expected to cut the individual well allowable to 50 barrels within 60 days or less.

## ☆ Canada

### 190,000-Acre Reservation Taken by Shell Near Calgary

Shell Oil Company of Canada has taken up a reservation covering about 190,000 acres of Crown oil and gas rights extending to within 20 miles southeast of the city of Calgary, located along the east side of the Alberta Syncline and the west edge of the South Alberta Plains. The block includes rights in Twp. 16 Rges. 25 to 27w4; Twp. 17 Rges. 25 to 28w4; Twp. 18 Rges. 26 to 28w4; Twp. 19 Rges. 26 to 29w4; Twp. 20 Rges. 27 to 29w4; and Twp. 21 Rges. 27 and 28w4.

The Shell move indicates further activity for 1946 on the Alberta Syncline, the relatively untouched great trough between the Foothills Belt and the Plains. Upwards of 750,000 acres are now under reserve or lease in the Syncline area, north and south of Calgary.

Two terraces along the east slope of the Syncline indicated by 1945 seismograph work are now under test. One of these, Royalite Oil Company's De Winton 1 test, lsd 14 16-21-1w5, about 20 miles south of Calgary, is currently drilling below 4900 feet, looking for the Madison Limestone objective around 8000 feet.

The second Syncline Terrace test, the joint Imperial Oil & Anglo Canadian Oil Crossfield 1, lsd 9 11-28-2w5, 20 miles north of Calgary, confirmed the Madison Limestone at 8177 feet, and halted at 8196 feet after penetrating 19 feet of hard, dense lime. From 8095 feet to the top of the lime, the well penetrated a Basal Lower Cretaceous sand section which showed some evidence of gas plus oil saturation. The sand was being tested preliminary to running casing and deepening into the lime.

Three bulldozers have commenced clearing a winter road from the Entrance railway point into the "Smoky River Reservation," over 40 miles northwest in the North Central Alberta foothills. As soon as road progress permits, a Heiland Exploration seismograph party will move in to commence geophysical work on this remote block, covering some 207,000 acres.

Imperial Oil Ltd., continuing exploration along the Mackenzie River Basin of Canada's Northwest Territories, spudded Redstone 1, a wildcat, on December 26 about 120 miles north of the famed Norman Wells oil field (the world's most northerly), and about 7 miles west of the Mackenzie River.


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2. The method of treating and producing an oil-water well which contains a liquid column consisting at least in part of water, which method includes the steps of introducing into the well a fluid of lower specific gravity than the water until by the pressure so produced at least the water portion of the column is forced to a position wherein improved oil entry to the well is possible, shutting in the well for a period, and then producing the well while maintaining by the fluid contents thereof a back pressure upon the formation, the rate of production and the back pressure being correlated to hold in check the water in the formation.

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1. In combination, in an apparatus for effecting oil delivery from an oil-water well, means for mechanically pumping such a well, means for introducing into such a well a quantity of fluid of lighter specific gravity than the mixture of oil and water therein, and means for effecting the building up of a gaseous formation pressure upon the top of the fluid so introduced to force back into the oil stratum the liquid within the well, said means for mechanically pumping the well having means for regulating the rate of effective operation thereof.

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1. The method of treating oil-water wells which includes restoring to availability for oil delivery portions of the formation adjacent the well which have become water sealed by forcing, through the medium of a liquid of lighter specific gravity than the water, the water standing in the well into such position in the formation that there will be a reduced interference with the entry of oil into the well, then plugging off the bottom of the well by cementing, and thereafter repeating before a resumption of production the procedure utilized to restore to availability for oil delivery the portions of the formation adjacent the well which had been water sealed.

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## NOTICES

■ MONEY TO PURCHASE oil loans, oil payments and oil royalties in Texas, Oklahoma and New Mexico. Baptist Foundation of Texas, 201-03 Baptist Building, Dallas 1, Texas.

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*Next Week*

**The February 4 International Feature** issue of The OIL WEEKLY will present first-hand staff-developed information about operations in Argentina . . . Germany . . . Ecuador . . . Alaska . . . Venezuela.

**OIL WEEKLY editors traveled 54,000 air miles** in five months to get foreign material of this kind and some are still abroad. Plans for 1946 call for an enormous amount of foreign staff travel.

**To keep informed** about world events in oil keep up with the editors of The OIL WEEKLY.

# EXPLORATORY COMPLETIONS

### ALABAMA WILDCAT

**Clarke County—Failure:** C. V. Carey & Nu-Enamel Corp.'s A. W. Hill 1, nwc 27-9n-1e, abnd 5440 ft.

### CALIFORNIA WILDCATS

**Kern County—Failures:** Beverly Trading & Explor. Co.'s C.C.M.O. 1, 28-29s-21e, Sheep Springs area, abnd brown shale 4512 ft.

J. H. Maurer-A. C. Fisher's Jean 3, 16-26s-28e, Dominion area, Schist 1339 ft, abnd Schist 1520 ft.

Shell's L.C.L. 45-16, 16-31s-26e, Old River area, abnd 11,500 ft.

Shell's University of California 1, 3-25s-18e, Dagany Gap area, abnd 1577 ft.

**Sacramento County—Failure:** Shell's Staten Island 2, 13-4n-4e, Isleton area, abnd 4502 ft.

**Solano County — Failure:** Amerada's M. L. Preston A-1, 24-6n-2e, Dixon area, abnd 5000 ft.

**Solano County—Gas Discovery:** Shell's McCune 1, 29-8n-1e, perf 5209-39 ft, flow 6 mln gas open, td 5528 ft.

### KANSAS WILDCATS

**Clark County—Failure:** Helmerich & Payne's Yoeman 1, nw nw se 3-31s-21w, Arb 6375 ft, abnd 6433 ft.

**Cowley County—Failure:** Consolidated Gas Utilities' Mendenhall 1, c nw nw 31-31s-7e, Arb 3266 ft, abnd 3270 ft.

**McPherson County—Failure:** Don T. Ingling's Simpson 1, nw nw ne 4-21s-1w, Miss lime 2943 ft, abnd 3012 ft.

**Pratt County—Failure:** H. A. Hershfield's Wolf 1, ne ne sw 19-30s-11w, Arb 4896 ft, abnd 4965 ft.

**Rice County—Failure:** Ed Swearer et al's Ross 1, se se nw 23-19s-8w, Arb 3585 ft, abnd 3617 ft.

**Sheridan County—Failure:** Fred Anschultz's Webber 1, ne ne sw 21-7s-26w, abnd 4562 ft.

**Stafford County—Failure:** Olson Drlg. Co.'s Hart 1, sw sw ne 15-25s-15w, Arb 4498 ft, abnd 4538 ft.

### NORTH LOUISIANA WILDCATS

**Bossier Parish — Failure:** Big West Drlg. Co.'s Continental American Bank & Tr. Co. 1, c sw ne 23-19n-11w, ssg C.V. "D" sd 4684-4715 ft, abnd 5925 ft.

**Natchitoches Parish—Ashland Oil Discovery:** M. T. Halbouty et al's C. L. Detro 1, 1-13n-8w, Woodbine sd 3285 ft, perf 3288-94 ft, flow 102.5 bbls 26.4-gr oil, 8-10% wtr, 11/64-in, tp 175 lbs, cp 400 lbs, td 3301 ft.

### SOUTH LOUISIANA NEW PAY TEST

**Lafayette Parish—N. Cankton Discovery:** Shell's Breauz-Kilchrist 1, 2655.2 s 1° 15 mins w 1200 s 88° 45 mins e nwc 65-8s-4e, pay 10,916 ft, perf 200 shots 10,916-66 ft, flow 55 bbls 54.4-gr, 7/64-in, tp 3550 lbs, gor 17,200/1, td 11,101 ft.

### MICHIGAN WILDCATS

**Gratiot County—Failure:** Gordon & Sohio's Roberts 1, se nw se 13-9n-3w, Dundee 3000 ft, abnd 3052 ft.

**Montcalm County — Oil Discovery:** Sohio, Union and Barber's Douglas 1, nw sw se 3-12n-8w, Cato Township, elev 967 ft, Stray 1301 ft, Traverse 2968 ft, Dundee 3440 ft, Monroe 3503 ft, pay 3544-50 ft, flow 58 bbls after 100 gals acid, td 3554½ ft.

**Oceana County—Failure:** Carter's Neuman 1, ne se ne 21-14n-18w, abnd 3008 ft.

### MISSISSIPPI WILDCATS

**Greene County—Failure:** Humble's Oscar E. Waer 1, nec se 33-5n-8w, abnd 8300 ft.

**Jeff Davis County—Failure:** Humble's Andrew Barnes 1, nec se 24-7n-18w, cap rock 2680 ft, salt 3083 ft, abnd in salt 7369 ft.

### NEW MEXICO WILDCATS

**Eddy County — Failure:** Schuster & Messinger's Anderson 1, c sw nw 31-19s-28e, elev 3400 ft, abnd 1605 ft.

**Torrance County—Failure:** Dale Resler et al's Naldo 1, c se se 27-1n-15e, granite 3335 ft, abnd 3350 ft.

### NEW MEXICO OUTPOST

**Eddy County—High Lonesome Field Extension:** Forest E. Levers' Levers-Federal 1-B, c se ne 34-16s-29e, 1 mi e by s of prod in same zone, elev 3661 ft, salt 425-825 ft, Red sand 1814 ft, flow 64 bbls 39-gr, ½-in, shot 130 qts nitro 2630-70 ft, pay 2632 ft, td 3028 ft, pb 2675 ft.

### OKLAHOMA WILDCATS

**Bryan County—Failure:** Atlantic's State 1, se sw sw 36-7s-8e, abnd 6647 ft.

**Carter County—Failure:** J. D. Lewis et al's Boring 1, nw se nw 33-4s-2w, abnd 2620 ft.

**Cotton County—Failure:** T. H. McCasland et al's Yer-nit-cut 1, se se ne 11-3s-12w, abnd 2459 ft.

**Creek County—Failure:** E. P. Halliburton's Paneske 1, ne sw nw 17-18n-8e, abnd 3755 ft.

**Garvin County — Failures:** C. P. Burton's Jones 1, se se 22-2n-1w, abnd 6240 ft.

Davon Oil's Tincher 1, nw ne se 17-4n-2e, abnd 4256 ft.

**Grant County—Failure:** S. M. Stauffer et al's Farm Hall 1, ne ne se 9-25n-7w, wot.

**Hughes County—Gas Discovery:** Leach & Warren's Brooks 1, ne ne sw 7-9n-10e, flow 5.25 mln gas, Booch 3440-59 ft, td 3490 ft. This well was carried as a failure on last report but was eventually finaled as a producer.

**Hughes County—Oil Discovery:** Iron Drlg. Co.'s Davis 1, se ne nw, pump 5 bbls, Booch sd 2594-2613 ft, td 2631 ft.

**Jefferson County — Failure:** W. H. Gant's Barrett 1, sw ne ne 17-6s-7w, abnd 4817 ft.

**Logan County—Failures:** Superior of Calif.'s Johnson 1, nw sw sw 12-15n-4w, abnd 6775 ft.

Globe O&R's State 1-E, sw sw se 16-17n-1e, abnd 5064 ft.

**McClain County—Failure:** Shell's Kniffin 1, sw ne 17-5n-1e, abnd 3919 ft.

**Noble County—Failures:** Sungold Oil Co.'s Stranske 1, sw sw nw 35-24n-1w, abnd 2261 ft.

J. E. Trigg's West 1, nw nw sw 17-24n-2w, abnd 4841 ft.

**Okfuskee County — Failure:** Public Service Co.'s Rose 1, nw se 28-10n-12e, abnd 2084 ft.

**Pawnee County — Failure:** Big Four Pet. Co.'s Witt 1, ne ne sw 30-21n-7e, abnd 2816 ft.

**Pontotoc County—Failure:** Rinehart & Pennington's McKell 1, sw sw nw 36-3n-4e, abnd 1497 ft.

**Pottawatomie County—Oil Discovery:** J. F. Smith's Kerber 1, sw se nw 3-7n-3e, pump 40 bbls, Hunton lm 4536-63 ft, td 4915 ft.

**Pottawatomie County—Failure:** Ace Gutowsky's Belch-Eaves 1, sw ne sw 10-10n-2e, abnd 5559 ft.

**Stephens County—Failure:** E. P. Halliburton's Pernell 1, se se se 23-1n-7w, abnd 7502 ft.

**Caddo County—Failure:** J. R. Trigg's Smith 1, se se nw 19-6n-9w, abnd 6200 ft.

**Carter County—Failure:** Sohio's Speake 1, sw se 33-2s-1w, abnd 4923 ft.

**Cotton County—Failure:** T. H. McCasland's No-ban-nuck 1, ne ne ne 5-3s-12w, abnd 3299 ft.

**Garfield County—Failures:** Skelly Oil's Phillips 1, ne ne sw 3-20n-4w, Layton 4610 ft, abnd 4746 ft.

J. E. Trigg's Johnson 1, ne ne ne 19-24n-5w, abnd 5485 ft.

**Hughes County—Oil Discovery:** Bartlett et al's Howell 1, ne nw nw 10-6n-8e, pump 42 bbls, Booch 2616-32 ft, td 2632 ft.

**Logan County—Failures:** Harper-Turner et al's Freudenberger 1, sw se 9-17n-1w, abnd 5435 ft.

Portable Drlg.'s Dunham 1, ne ne ne 27-16n-1w, abnd 5700 ft.

**McClain County—Oil Discovery:** Carter's Mottinger 1, nw nw 5-6n-3w, flow 890 bbls oil day, Bromide sd 10,812-922 ft, td 11,237 ft.

**Noble County—Failure:** Olson Drlg. Co.'s Smith 1, sw sw se 2-22n-2w, abnd 5238 ft.

**Pawnee County—Failure:** J. E. Trigg's Gilchrist 1, se sw se 5-22n-4e, abnd 4115 ft.

**Seminole County — Failure:** Globe O&R's Norvell Est. 1, ne sw nw 20-7n-7e, abnd 2340 ft.

**Stephens County—Failure:** Texas Co.'s Neal 1, sw sw sw 22-1n-4w, abnd 1175 ft.

**Stephens County—Oil Discovery:** Skelly et al's Chilton-Mayo Unit 1, 14-2s-4w, s½ n½ nw se, pump 92 bbls oil day, Penn sd 2915-40 ft, td 7177 ft.

### WEST TEXAS NEW PAY TEST

**Reagan County— Big Lake Deep Failure:** Big Lake Oil Co.'s University 13-C, 1470 snl 1110 ewl sect 25, blk 9, deepened fr depleted Ellenburger 8209-8667 ft, Cambrian 9740 ft, granite 9853 ft, pumped 9 bbls oil, 142 bbls wtr fr regular pay perf at 2910-30 ft, td 9854 ft, pb 2930 ft.

### WEST TEXAS OUTPOST

**Garza County—Post Field Failure:** Lanier-Meredith Co.'s Slaughter 1, 2338 wel 330 snl ne¼ sect 29, blk 1, Joseph Hays sur, elev 2874 ft, 1⅜ mi s by w of prod, abnd 3453 ft.

### WEST CENTRAL TEXAS WILDCATS

**Concho County—Failures:** Eltex, Ltd's Meinger 1, 405 wel 330 nsl BS&F Ry. sect 1, A-90, elev 1962 ft, abnd 4405 ft.

Vantex, Ltd.'s Jacoby 1, ne ne ne BS&F sur 70, elev 2155 ft, base Palo Pinto 3070 ft, base-Bend 3590 ft, Marble Falls 3613-3720 ft, abnd 4305 ft.

**Fisher County—Failure:** Harley Sadler et al's Whitaker 1, 550 nsl 440 ewl T&P Ry. 7, blk 21, elev 2194 ft, abnd 2978 ft.

**Jones County—Failure:** Crown Central Pet. Corp.'s Hayden 1, 330 out sec 168-ac lse and lot 4, Gabriel Martinez sur 195, elev 1710 ft, abnd 2570 ft.

**Stephens County—Failure:** W. R. Skeen's Compton 1, 467 out sec TE&L Co. 2254, elev 1249 ft, Bend 3337 ft, Mississippi 4167 ft, Ellenburger 4192 ft, abnd 4328 ft.

### SOUTHWEST TEXAS WILDCATS

**Duval County—Failure:** Don H. Marsh et

al's Dolores Garcia 1, 467 fr wl 2750 fr nl sh 4 and 592.8-ac lse, Santa Cruz de Concepcion Gr, e of Sejita fld, abnd 2513 ft.

**Jim Hogg County—Failure:** Sid Katz's C. W. Hellen 1, 660 fr s&wl El Randado Gr sur 24 and blk 16, abnd 2720 ft.

**McMullen County — Gas Discovery:** J. W. Gorman's Reiz Bros. 1, 990 fr wl 330 fr nl AB&M sur 75, 1½ mi s Campana fld, perf 1953-58 ft, comp gas well, no gge, sip 630 lbs, td 3176 ft.

**Starr County—Failures:** Boyd & Galt's C. Ramos Est. 1, 990 fr wl 2963 fr sl sect 150, abnd 1310 ft.

Geo. R. Boyel's Loreto Canales 2, Parcel B sh 2 sect 2-B, La Sacatosa Gr, 262.12-ac lse, abnd 1600 ft.

**Webb County—Failure:** O. W. Killam's J. G. Garcia 1, 330 fr sl 990 fr el blk 18, sur 592, 160-ac lse, abnd 1970 ft.

### LOWER TEXAS COAST WILDCATS

**Hidalgo County—Failure:** W. D. Kennard's Isabel Y. Garcia et al 1, 330 fr wl porc 42 and 440-ac lse, 3000 fr nl lse, abnd 3525 ft.

**Jackson County—Failures:** Fred M. Manning's Lola Gary et al 1, 990 fr sl 2950 fr el 275-ac lse, J. Mathis ¼ Lge, sso 4840-07 ft, abnd 6510 ft.

Monday Oil Co.'s Harry Sunter 1, 467 fr nwl 933 fr swl 200-ac lse, W. J. E. Heard sur, abnd 6650 ft.

**San Patricio County — Failure:** Fred M. Manning's J. E. Thompson 1, 330 sw of nel blk 5 and 165.9-ac lse and W. R. sur, lot 5 J. K. New Rch sbdn, abnd 4752 ft.

### UPPER TEXAS COAST WILDCAT

**Wharton County—Failure:** J. B. Ferguson-J. F. Hutchins' Leo Brod 1, 93-ac tr, I&GN sur, elev 97 ft, abnd 5660 ft.

### EAST TEXAS BORDER COUNTIES WILDCAT

**Shelby County—Failure:** Hiawatha Oil Co.'s Pickering Lbr. Co. 1, W. J. Brittion sur, 5½ mi se Patroon, Georgetown 3540 ft, massive anhy 5710 ft, test gas and sw, abnd 5913 ft.

### EAST TEXAS WILDCATS

**Hunt County—Failure:** Homer W. Snowden et al's Banks 1, 660 s of m/s/nl 2320 e of m/w/wl of Joseph Hiller sur, elev 571 ft, Woodbine 2764 ft, abnd 2778 ft.

**Limestone County—Failure:** Nu-Enamel Oil Operating Co.'s Eula D. Schulz 1, 450 ewl 330 fr nel of 127.8-ac tr, or 6250 fr nwl 31,150 fr nel of Pedro Varela sur, Nacatoch 925 ft, Austin chalk 2495-2890 ft, Woodbine 3351 ft, abnd 3372 ft.

**Morris County—Failure:** H. L. Hunt's C. Robison 1, 660 out swc of 123.89-ac tr, John Brandon sur, Midway 1690 ft, Nacatoch 2020 ft, Pecan 2560-3170 ft, Blossom 3380 ft, Eagleford 4010 ft, Sub-Clarksville 4024 ft, Georgetown 4428 ft, Glen Rose 5960 ft, massive anhy 7214 ft, Pettit 8140 ft, Pittsburg sd 8160 ft, Travis Peak 8220 ft, abnd 8431 ft.

**Van Zandt County—Failure:** Humble's Lutz 3500 wel 3950 nsl Jas. Allison sur, elev 477 ft, Nacatoch 1386 ft, Pecan 2305 ft, Austin 3253-3693 ft, Woodbine 4197 ft, Georgetown 4975 ft, Goodland 5930 ft, Paluxy 6040 ft, Glen Rose 6339 ft, massive anhy 7337-7498 ft, Travis Peak 8185 ft, abnd 8405 ft.

### NORTH TEXAS WILDCATS

**Archer County—Oil Discovery:** Bridwell Oil Co.'s Oil Investment Co. 1-F, 3127 ewl 2157 nsl blk 125, John Richards and J. W. Harris sbdn, elev 979 ft, Bend 4855 ft, pump 8 bbls 40.6-gr oil, 2 bbls wtr, 1500 gals acid via Bend perf 4860-66 ft, td 4925 ft.

**Archer County—Failure:** Bridwell Oil Co.'s Ferguson 1, 922 snl 1310 ewl blk 11, KWVFL sur, abnd 1880 ft.

**Throckmorton County—Failure:** Nu-Enamel Oil Op. Co.'s Keeter-Shell 1, 1263 nsl 330 ewl sect 3020, TE&L Co. sur, elev 1242 ft, Bend 4329 ft, Mississippi 4895 ft, abnd 4903 ft.

**Wilbarger County—Failures:** Fred M. Manning's Graff 1, sw sw sw H&TC Ry. 33, blk 9, elev 1290 ft, abnd 5002 ft.

Nat. Assoc. Pet. Co.'s Muller 1, se nw ne H&TC 55, blk 12, elev 1268 ft, abnd 5507 ft.

### WESTERN CANADA WILDCATS

**Southern Saskatchewan—Davidson Failure:** Imperial Oil's Davidson 1, lsd 16 8-27-1w3rd, abnd in Silurian 5234 ft.

**South Alberta Plains—Lethbridge Failure:** Imperial Oil's Lethbridge 1, lsd 3 10-8-22w4th, abnd in Madison limestone 4700 ft.

## WILDCAT STARTS

### CALIFORNIA

**Kern County:** Independent Exploration Co.'s Lambert Lands 2, 35-26s-27e, McVan area, rur.

J. H. Maurer and A. C. Fisher's Jean 3, 16-26s-28e, Dominion area, dr.

**Kings County:** Four Star Oil Co.'s Corcoran Irrigation 1, 24-20s-22e, Corcoran area, dr.

### COLORADO

**Rio Blanco County:** Texas Co.'s Unit 29, ne sw 26-3n-94w, Wilson Creek area, rurt.

### FLORIDA

**Osceola County:** Humble's N. Ray Carroll 1, se se 10-27s-34e, lcn.

### ILLINOIS

**Clay County:** J. J. Lynn's Hunley 1, se se nw 35-3n-7e, lcn.

W. W. Shaffer's Staats 1, se se se 23-5n-7e, dr.

**Colcs County:** Nation Oil Co.'s Elliott 1, ne ne sw 27-12n-8e, dr.

C. L. Withers' McDivitt 1, se ne ne 15-12n-10e, dr.

George & Wrather's Tivnen 1, nw sw sw 26-13n-7e, dr.

Tommie F. Concannon's Cochran 1, ne ne se 23-13n-9e, dr.

D. F. Wright's Taylor 1, ne ne ne 33-14n-10e, dr.

**Effingham County:** F. J. Mitchell's Ruholl 1, sw sw se 25-9n-6e, dr.

**Jasper County:** John Washburn et al's Baker 2, e½ nw se 30-6n-10e, lcn.

**Jefferson County:** E. S. Adkins' Green 1, nw sw sw 8-3s-1e, lcn.

**Shelby County:** T. Blake Dirickson et al's Hazen 1, nw sw sw 12-11n-4e, lcn.

T. Blake Dirickson's Munson 1, nw sw sw 32-12n-6e, dr.

**Washington County:** W. F. Lacy's Randensmeyer 1, sw se ne 10-1s-2w, dr.

**Wayne County:** J. J. Lynn's Ellis 1, se se nw 34-1s-8e, lcn.

**White County:** Sun's Okerson 1, nw sw ne 9-7s-8e, lcn.

### INDIANA

**Knox County:** J. C. Haynes' Warnock 1, ne ne se 6-2s-10w, lcn.

**Perry County:** R. F. Brown's Barekman 1-A, sw se se 15-3s-3w, lcn.

**Posey County:** Fox & Fox's Audry 1, se se se 10-4s-14w, lcn.

**Spencer County:** H. L. Lambert's Jolly 1, 34-6s-7w, lcn.

### KANSAS

**Barton County:** Jones & Shelbourne's Aetken 1, nw nw ne 28-19s-15w, rig.

**Russell County:** Bridgeport's Kaufman 1-B, ne ne nw 19-15s-12w, rur.

**Stafford County:** H. A. Hershfield et al's Shirk 1, se se ne 35-24s-14w, lcn.

### KENTUCKY

**Breckenridge County:** F. Douthett's Clark 1, 8-P-35, comp.

**Davis County:** M. Collis et al's Smith 1, 14-P-29, dr.

**Muhlenberg County:** B. Hackbush's Yunkers-Eads 1, 10-J-28, dr.

B. Hackbush's Yunkers 3, 17-J-29, dr.

B. Hackbush's Yunkers 2, 15-J-30, lcn.

**Union County:** Delta Drlg.'s Drury 1, 19-P-20, dr.

### NORTH LOUISIANA

**Richland Parish:** Roy T. Sellars' Dan B. McKay 1, c sw sw 11-16n-7e, Paluxy test.

### SOUTH LOUISIANA

**Assumption Parish:** Union of Calif.'s Norman-Breaux Lbr. Co. 1, 1980 w 1980 s nec 24-15s-13e, Grassy Lke prospect, 12,000-ft test.

**Beauregard Parish:** Magnolia's Lutcher-Moore Lbr. Co. 2-D, fr sect 6 go n 1980 th w 660 to lcn in 6-6s-11w, Mystic area, 10,500-ft test.

### MICHIGAN

**Allegan County:** J. W. Lang's Stora 1, sw sw ne 18-3n-11w, lcn.

**Kent County:** C. E. Grime's Lemunyon 1, ne ne ne 8-9n-11w, dr.

**Midland County:** Cities Service's McCartney 1, nw nw sw 6-15n-2w, lcn.

**Saginaw County:** Cities Service's McNier 1, se se se 11-12n-1e, lcn.

**Gratiot County:** Ray Andre's Smead 1, nw nw ne 29-11n-4w, dr.

### MONTANA

**Toole County:** Bannatyne Oil Synd.'s Speer 1, nw nw se 5-25n-1e, Banmatyne structure, lcn.

**Wheatland County:** R. C. Tarrant's Bair 1, sw ne nw 28-9n-12e, Daisy Dean structure, ru.

R. C. Tarrant's Williams 1, c ne sw 29-9w-13e, Haymaker structure, dr 695 ft.

### OKLAHOMA

**Carter County:** Continental's Bonner 1, se se sw 18-3s-2w, lcn.

**Comanche County:** J. L. Cowley's Bertram 1, nw se ne 27-1n-10w, dr 1406 ft.

**Dewey County:** Okla. Nat. Gas et al's Green 1, nw nw nw 6-17n-14w, lcn.

**Garvin County:** Cities Service's Hoffman 1, sw se nw 21-3n-1w, lcn.

R. H. Dearing & Son's McBride 1, ne nw nw 30-4n-2w, lcn.

Tide Water's Prince 1-A, sw se sw 31-1n-2w, Vi 684 ft, dr 915 ft.

**Kay County:** Alladin Pet.'s Knedler 1, nw nw se 1-26n-4e, c&p.

**Lincoln County:** Crawford et al's Fee 1, sw se ne 24-15n-5e, rig.

R. H. Pierce's Hertz 1, sw sw se 7-15n-5e, rur.

**Logan County:** Sinclair-Prairie's Teuscher 1, se se sw 34-15n-1w, dr 1960 ft.

Eugene Jordan's Dean 1, nw nw ne 7-15n-1w, rig.

**McClain County:** Shell's Kniffin 1, sw ne 17-5n-1e, dr 3919 ft.

**Murray County:** Helmerich & Payne's Sadeler 1, se nw ne 29-1n-2e, lcn.

**Osage County:** Norbla Drlg. et al's Osage 1, se ne nw 6-23n-6e, lcn.

**Seminole County:** Big Chief Drlg. Co.'s Mathis 1, nw nw sw 35-6n-6e, dr 2060 ft.

**Stephens County:** W. H. Atkinson's McCutchens 1, nw se sw 22-2s-8w, lcn.

**Harper County:** Continental et al's Howard 1, sw sw se 15-27n-21w, lcn.

**Okfuskee County:** Brown et al's Khea 1, nw ne sw 14-10n-9e, rig.

George C. Vincent's Musgrave 2, ne se 17-12n-11e, lcn.

**Oklahoma County:** Peppers Ref. Co.'s Moyer 1, nw nw ne 3-14n-2w, rig.

**Payne County:** British American's Gibson 1, nw se sw 8-17n-2e, lcn.

### WEST TEXAS

**Pecos County:** Byrd & Frost's L. H. Millar-Gulf 1, c ne ne H&GN Ry. 53, blk 11, 2000-ft cable test.

**Swisher County:** L. A. Helms et al's W. C. Watson 1, 330 nsl 1065 ewl BS&F 125, blk M-10, c 6000-ac blk, 3500-ft test.

### WEST CENTRAL TEXAS

**Brown County:** W. F. Brown et al's S. B. Cannon 1, 1520 snl 709 ewl sect 3, W. Ahrenbeck sur, lcn.

**Callahan County:** Eaton & Looney's J. F. Dyer 1, 150 nsl 1500 ewl sect 135, BBB&C Ry. sur, 1150-ft cable test.

**Erath County:** T. G. Jackson et al's L. Migel 1, 660 out sec 223-ac tr and W. B. Waggoner sur, 4000-ft cable test.

**Jones County:** H. K. Riddle et al's I. K. Barnhouse 1, 330 ewl 2000 snl labor 2, Lge 358, Goliad CSL sur, 3100-ft test.

**Runnels County:** O. P. Leonard et al's C. W. Trammel 1, 467 snl 1401 ewl ne¼ E. T. Ry. sect 115, 3500-ft cable test.

### SOUTH CENTRAL TEXAS

**Zavala County:** Humble's I. T. Pryor Est. 2, 13-10S s&e well 1, 6100 fr sl 30,000 fr wl 30,000-ac lse, Pedro de Aguirre Gr, lcn.

### SOUTHWEST TEXAS

**Duval County:** Swanie Robertson's E. R. Hagist 1, 990 e of wl 1351.65 s of nl BS&F sur 124, 990 n of sl 224.23-ac lse, 3000-ft test.

Southern Mineral's Juan Benavides 1, 2400 ne of swl 2970 se of nwl 1584-ac lse, on line between blks 10 & 36, El Mesquite Gr, 2500 e of Fansler 1 dry hole, 3500-ft test.

### LOWER TEXAS COAST

**Goliad County:** Sun's M. L. Petton 1, 467 fr swl 4000 nw San Antonio River, 976.06-ac lse, Maria Jesusa de Leon Gr, 11,500-ft test.

### UPPER TEXAS COAST

**Harris County:** Jack W. Frazier's R. E. Brooks Est. 1, 660 ne at ra fr Greens Bayou 350 fr nwl 65-ac tr out of 1200-ac lse 2200 s at ra fr intersection Bayou and Market St. rd, 5500-ft test.

### EAST TEXAS

**Cherokee County:** Tex Harvey Oil Co.'s H. & R. Reitsch 1, 330 nsl 2910 wel of 200-ac tr and O. Weir sur A-920, 10 mi ne of Rusk, Woodbine test.

**Kaufman County:** Bobby Manziel et al's Annie Williamson 1, 95 fr nw&nel blk 36, Kemp townsite, 3500 ewl 2500 nsl of J. S. Ables sur, Paluxy test.

### NORTH TEXAS

**Archer County:** Fain-McGaha et al's Jones & Cullum 1, sw sw nw S.P. Ry. 2, A-1255, Ellenburger test, dr 2460 ft.

S. F. Hutcheson et al's Fee 1, 150 out nwc blk 142, J. W. Harris sbdn 1450-ft rotary test, sd 1200 ft.

**Clay County:** Wayne H. Hammon's C. H. McClellan 1, 1400 nsl 2000 ewl (river) of Chas. F. Stanley sur, 1400-ft rotary test.

### WESTERN CANADA

**Central Alberta Plains—Kinsella:** Imperial Oil's Kinsella 5, lsd 7 11-48-9w4th, lcn.

Imperial Oil's Kinsella 6, lsd 10 11-47-9w4th, lcn.

## *Utilities Meeting Set*

Annual convention of the Oklahoma Utilities Association will be held March 11-12, at the Biltmore Hotel, Oklahoma City. S. I. McElhoes, Public Service Company of Oklahoma, is chairman of the convention committee.

## SQUEAKS from the BULL WHEEL

### Ham from Him

Said one sow to another sow: "What became of your boar friend?"

"Oh, he hasn't been around lately—but I had a litter from him the other day."

### Egg-sactly

"Johnny, if I lay three eggs here and five eggs there, how many eggs will I have?"

"Teacher, I bedoggoned if I think you can do it."

### Things to Come

"I'd like to work here," said the bricklayer, "but I can't find a place to park my car."

"Can't use you, bub. We want only bricklayers who have chauffeurs."

### Sounds Fishy

"Did you mark that place where the fishing was so good?"

"Yep, I put an 'X' on the side of the boat."

"Gee, you're dumb. What if somebody steals the boat?"

### This Makes Scents

"What is the most important organ of the body?"

"The nose."

"Why?"

"Well, it's the human scenter."

**What the Oil Industry Wants to Know Is . . . Will Their Wildcats Produce?**

To prove the value of our services we will report, in advance of completion, the outcome of several wildcat wells being drilled by Major Oil Companies in various states. Reports will be sent to those interested in our services, with no obligation.

**CHEMICAL ANALYSIS SURVEYS**
**3110 Holmes Street Kansas City, Mo.**


### This Curious World

Samson killed 1000 men with the jawbone of an ass. Many a friendship is slain with the same weapon.

A mother may hope that her daughter will get a better husband than she did, but she knows her son will never get as good a wife as his father did.

Girls are fond of pretty clothes, but they are not entirely wrapped up in them.

The rising generation retires just about the time the retiring generation is arising.

A conservative is a man who does not think that anything should be done for the first time.

Some men are home-loving, while others would like to be home—loving.

It's terrible to be old when the night is young.

A certain friend is very kind to his relatives. He takes Old Grandad to all the parties.

### Born too Soon

Had Abraham Lincoln been living today the Rotary Club would supply him with a set of books, the Lions Club with a good reading lamp, and the Kiwanis Club with a wooden floor for his cabin.

He would have the protection of the child labor law and government old age insurance. A philanthropist would send him to college with a scholarship.

Incidentally, a case worker would see to it that his father received a monthly check from the county. The OPA would reduce his rent 50 percent. He would receive a subsidy for rail splitting, another for raising a crop he was going to raise anyway, and still another for not raising a crop he had no intention of raising.

Result: There would have been no Abraham Lincoln.

### Badder the Gooder

"How's your new girl?"

"Not so good."

"You always were lucky."

### Just Between Friends

"Go to sleep now, sonny. The sand man is coming."

"Okay, Mom, I won't tell Pop."

### Not Too Crowded

"Boy, did my girl throw a party last night."

"Who was there?"

"Just us two."

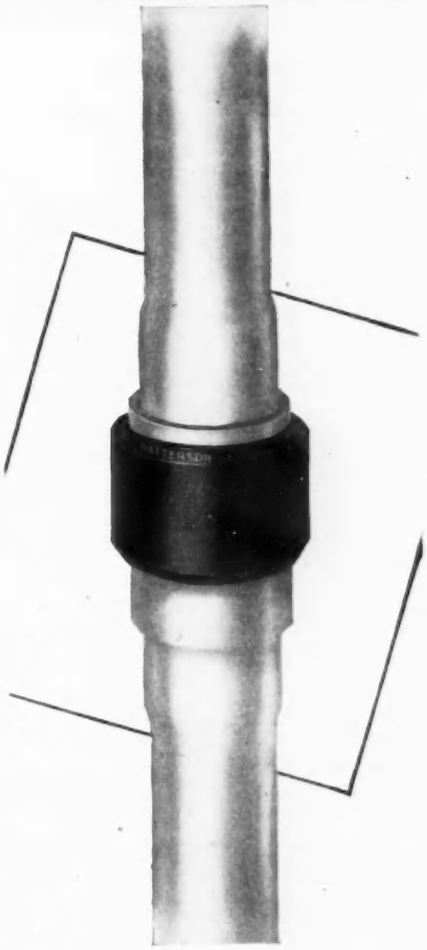
### Poet's Nook

There was a little lawyer man
Who gently smiled as he began
Her dear, dead husband's will to scan
And thinking of his coming fee,
He said to her quite tenderly,
"You have a nice fat legacy."
Next morning as he lay in bed
With plasters on his broken head,
He wondered what the heck he'd said.

### Encore

There's nothing like a wedding
To make a feller learn;
At first he thinks she's his'n,
But later learns he's her'n.


*"Best Bet Yet"*



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*See Composite Catalog*

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## MEN IN THE INDUSTRY NEWS

**W. A. Thomas,** recently returned from Europe where he was stationed for 21 months with the Military Allied Command, will take charge of The Ohio Oil Company's geological department in the Permian Basin with headquarters Midland, Texas. Thomas, a veteran of World War I, volunteered for service in World War II in 1942. He was commissioned a major in October, 1943, and rose to lieutenant colonel. He was chief geologist for Ohio in the Michigan district when commissioned.

W. A. Thomas

Prior to becoming Michigan district geologist for Ohio in July, 1939, Thomas had been chief Michigan district geologist for The Pure Oil Company from 1926 until he resigned in November, 1935, to direct the geological department of McClanahan Oil Company.

**Dr. T. A. (Ted) Link** has been appointed chief geologist for Imperial Oil, Ltd., succeeding **O. C. Wheeler,** who has been made a director of Imperial's subsidiary, International Petroleum Company, Ltd. For many years in charge of Imperial's Western Canadian exploration, in charge of the Imperial geological party which staked the discovery well at Norman Wells, and in charge of his company's Northwest Territories program since inception of the U. S. Army's Canol project, Dr. Link had 25 years of field work before his promotion to chief.

**Dr. J. C. Sproule,** Imperial's divisional geologist for Saskatchewan and sub-surface geologist for Alberta, has advanced to Toronto as assistant to chief geologist of International Petroleum. He has been succeeded as Alberta sub-surface geologist by **Dr. E. W. Shaw. Dr. J. B. Webb,** chief of Imperial's Alberta exploration department, adds Saskatchewan to his territory.

**Marshall L. Edwards,** Skelly Oil Company, Tulsa, has been named chairman of the state and local taxation committee of the Mid-Continent Oil and Gas Association.

**Dr. Parke A. Dickey,** Quaker State Oil & Refining Company, Bradford, Penn., discussed "Geology and Secondary Recovery" before the Houston Geological Society January 14.

**Charles E. McKinney,** former regional OPA press and radio officer with headquarters in Dallas, has joined the public relations department of The Carter Oil Company in Tulsa. He is a graduate of the University of Oklahome and formerly was on the editorial staff of the Tulsa World and other Oklahoma newspapers.

**M. A. Wright,** assistant manager of the production department of The Carter Oil Company, has been transferred from Tulsa to New York to be the company's representative there. **R. J. Sullivan,** Mattoon, Ill., superintendent of Carter's eastern division, has been named to Wright's post. **C. G. Herrington,** chief production engineer, will succeed Sullivan as eastern division superintendent, and **A. R. West,** Billings, Mont., division engineer of Carter's Northwest division replaces Herrington. **M. C. Sons,** petroleum engineer in the Tulsa office, goes to Billings as Northwest division engineer.

M. A. Wright

Wright joined Carter's Seminole district in 1933, became division engineer in the Central division in 1939, was division engineer of the southern division at Shreveport in 1941, and in 1943 returned to the Tulsa office. He has served as petroleum engineer, chief engineer and assistant manager of the production department.

C. G. Herrington

R. J. Sullivan

Sullivan began work for Carter in 1934 in the Burbank field as roustabout. He went to Mattoon as division engineer in 1938, was made assistant division superintendent, and two years ago became division superintendent.

**George L. Nye,** petroleum engineer and geologist, has been elected vice president of the City National Bank of Houston. For the past year, Nye has been in charge of the bank's oil and gas department.

**W. L. Harp** and **William R. Gahring,** both of Shawnee, Okla., and **L. M. Trawick** of Stroud, Okla., have organized the G-H Drilling Company, which will have headquarters at Shawnee.

**J. H. Field,** engineer with Sohio Petroleum Company at Oklahoma City, discussed "Electrical Operation of Pumping Wells" before the Oklahoma Society of Petroleum Engineers held at Oklahoma City University.

**Dr. William C. Ikins,** formerly district geologist and recently research geologist, has resigned from Tide Water Associated Oil Company to become associated with **Basil B. Zavoico,** consulting geologist of New York City. Dr. Ikins will be in charge of the Houston office recently opened by Zavoico in the Commerce Building.

Dr. William C. Ikins

**Robert E. Fearon,** consulting engineer and supervisor of research laboratories for Well Surveys, Inc., has joined the faculty of the University of Tulsa and will teach nuclear physics.

**Lieut. Col. Bradford Ross** of Cheyenne, Wyo., has been appointed general counsel succeeding **Charles V. Shannon,** who resigned several months ago. Ross, former member of the Wyoming State Legislature, and lawyer of Cheyenne and Washington, D. C., has been serving in the provost marshal's office as deputy director of the Internal Security Division. He is the son of the late **Will Bradford Ross** and **Nellie Tayloe Ross,** both former governors of Wyoming.

**Dan Cameron,** for the past three years with the Seabees, has returned to The Carter Oil Company and has been named division scout at Oklahoma City. He served in the Pacific theater during the war.

**Thomas F. Reagan,** superintendent of The Texas Pipe Line Company in Oklahoma and Kaw Pipe Line Company in Kansas, is retiring February 1 after more than 35 years of service.

**Frank W. Evans** has returned to Shell Oil Company at Houston as senior geologist after more than three years with the Navy.

**Lt. Col. Verne Austin,** who before joining the U. S. Cavalry four years ago was petroleum engineer with the California State Division of Oil and Gas, recently received the Legion of Merit in recognition of his leadership in restoring law and order at Camp Tule Lake, Calif., when domestic and international problems there called for courage and diplomacy.

**Russell Farmer,** West Texas-New Mexico district geologist for Stanolind Oil & Gas Company, has been transferred from Midland to Fort Worth, where he succeeds **W. Dave Henderson** as division geologist. Henderson recently resigned to become Midland district geologist for Phillips Petroleum Company.

Jack Edwards

**Jack Edwards,** vice president and sales manager for Oil City Tool Company, Houston, arrived in Caracas, Venezuela, January 13. While in South America, Edwards expects to visit fields in Eastern and Western Venezuela and Colombia.

**C. E. (Gene) Ross** has been appointed store manager at Kilgore for Republic Supply Company. He replaces **H. T. Hopkins,** who was recently promoted to assistant district manager at Shreveport.

**J. Bryan Oldham** has been named a vice president of the Lone Star Cement Corporation, in charge of the Dallas and Houston plants.

**Purd B. Wright, Jr.,** has been appointed manager for "Incor," technical service of Lone Star Cement Corporation, New York. **Ernst Gruenwald** has been made chief engineer, technical service; and **James F. Callery** is the new manager of the publicity department.

**Ralph D. Curtis** has resigned from Barnsdall Oil Company to join Earlougher Engineering (petroleum consultants and core analysis) of Tulsa as valuation-appraisal and pressure maintenance engineer. Curtis was with Gypsy Division of Gulf Oil Corporation from 1929 until 1936, when he joined Barnsdall. He entered the Army in 1942 as a captain and served as chief of the Mediterranean Section, Theatres Division, Army-Navy Petroleum Board. At the time of his discharge in May, 1945, his rank was lieutenant-colonel. For meritorious service in this capacity he was recently awarded the Legion of Merit.

**Charles N. Karr** has been appointed sales promotion manager of the Tractor Division of Allis-Chalmers Manufacturing Company, succeeding **E. L. Aikins,** who recently was placed in charge of the company's Tractor Division, Seattle, Wash.

T. J. Buchanan

**T. J. Buchanan** has been appointed sales representative in West Texas and New Mexico, for the McEvoy Company, Houston. He has had wide experience as roughneck, tool-pusher and driller.

He will have headquarters in Odessa, Tex.

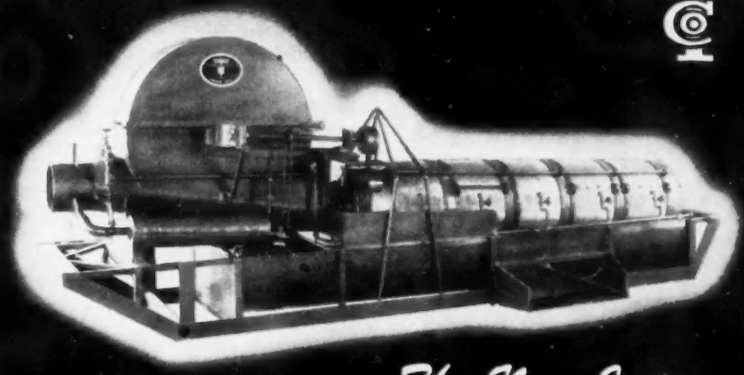
**John W. Woods,** veteran employe of Halliburton Oil Well Cementing Company in the Gulf Coast area, has been placed in charge of the company's Tulsa office and will direct sales and service.

**Bryan Curtis,** for the past few years ensign in the Maritime Service, has returned to duty with American Iron & Machine Works Company and will be sales representative in the Houston territory. Curtis previously worked in Louisiana, West Texas, and South Texas territories.

**Robert L. Foree,** Dallas independent operator, has been appointed the Texas representative of Payne, Inc., which maintains headquarters in the First National Bank Building, Oklahoma City.

**Moulton Harrison** has returned to Lufkin Foundry & Machine Company, in charge of the Corpus Christi, Tex., branch. He had been in the Army since 1942 and held the rank of major. He saw service in Africa, Italy and France.


IT'S HERE



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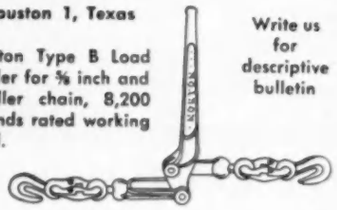

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CORPUS CHRISTI, TEXAS


## MEN IN THE INDUSTRY NEWS

**E. M. Burk** has been appointed traffic manager of Wyatt Metal & Boiler Works with headquarters at the Houston offices. Burk started his transportation work with Southern Steamship Company in Houston in 1931 and resigned as traveling freight agent in 1941 to become assistant traffic manager of Consolidated Steel Corporation, shipbuilding division, at Orange, Tex. He was promoted to traffic manager in 1944 and held that position until his resignation in 1945.

E. M. Burk

**John B. Anderson** has been appointed assistant manager of the Central District of Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, succeeding the late **Stanley J. Waechter.** The district has been expanded to include a large portion of Ohio and the eastern panhandle of West Virginia and several northern counties of Maryland.

**Joseph Hoffman** will represent the company in southern Pennsylvania and northern West Virginia territory, formerly covered by Anderson.

**Ernest J. Gottfried** has been appointed service manager for Fawick Airflex Company, Cleveland. He was a former test engineer with General Motors Diesel Engine Division and has recently returned from Russia, where he spent 18 months with the Russian Navy installing special equipment of his company in naval craft.

Ernest J. Gottfried

**Gordon E. Nicklos** has been discharged from the Army Engineers Corps with the rank of captain and has rejoined Nicklos Drilling Company as drilling and production engineer with headquarters in Houston. A Yale graduate, Nicklos was stationed with the company in Louisiana when he was called to active duty in January, 1942. He served in the ETO 27 months with the 660th Engineers Topographic Battalion.

**William Langley,** of Baranquilla, Colombia, who represents several manufacturers of American oil field equipment in South America, was in Houston last week.

## Deaths

**William M. O'Connor,** 58, vice president of The Atlantic Refining Company and general manager in charge of foreign production, died January 16 while en route to Venezuela. O'Connor joined the company as auditor in 1912. He was made general auditor in 1920, and in May, 1923, he was named secretary. He became a vice president of Atlantic in May, 1929, and in January, 1930, became a member of the board of directors.

Wm. M. O'Connor

He was born in Boston and received his early education in the public schools of Brooklyn. He attended the Brooklyn Law School at St. Lawrence University, Canton, N. Y. He was a member of the general committee on crude production of the American Petroleum Institute and a member of the board of councillors of that organization.

**E. G. DeParade,** 40, attorney for Phillips Petroleum Company in Oklahoma City, died January 18 of injuries received in a truck-auto collision. He had been with Phillips about 12 years and as chief division attorney directed the oil company's cases in the courts and before hearings of the Oklahoma Corporation Commission. His wife also was fatally injured in the collision, which occurred about five miles north of Oklahoma City.

**George M. Church,** 56, president of Crane Oil Company and co-discoverer of the Church & Fields area, West Texas, died January 16 at Fort Worth.

**Henry L. P. Crotty,** 66, independent operator, died January 16 at Fort Worth.

**R. E. Powell** of Houston, retired oil man and formerly associated with Humble Oil & Refining Company, died January 16 in San Antonio.

**H. A. Schramm,** 51, manager of the crude oil purchasing department, Kanotex Refining Company, died January 15 in Winfield, Kans.

## BOOK REVIEW

### "Rope Chokers"

Interesting books about the oil industry are not too numerous, especially those that catch the real spirit and present it from the human interest angle. In truth, one might say that the great book covering this vital industry is yet to be written. The material is abundant, but so far no writer has succeeded in immortalizing oil.

A book recently released, "Rope Chokers," By C. K. Stillwagon, does present some pleasant reminiscences. It is a collection of human interest stories, anecdotes, historical fragments and pictures of the oil fields, a tribute to the "rope chokers" of yesterday and today. Pioneers, these "rope chokers" are called, trail-blazers who were and are a match for anything on earth.

The author is a Pennsylvanian by birth. In 1915 he began working in the oil fields of his native state as a roustabout and tool-dresser. Later at Ranger, Texas, and throughout the Mid-Continent, he gained additional knowledge of the oil industry by first hand experience, working on cable and rotary tools. He has been associated with the oil industry either by working in it, or in the supply business, since 1915. He is now owner and general manager of Well Equipment Manufacturing Corporation, Houston.

"Rope Chokers" is author Stillwagon's story gleaned from his experience in oil fields and with oil men. It is entertaining and worthwhile reading. There are some good laughs in it, and somehow it does paint a picture of the industry that makes one feel like he knows it a little better after reading the book.

Price of the book is $3, and it is printed by The Rein Company, P. O. Box 7598, Houston 7.

### Corrosion Inhibitors

"Chromate Corrosion Inhibitors in Bi-Metallic Systems," is the title of a 12-page booklet issued by the Mutual Chemical Company of America, 270 Madison Avenue, New York 16, N. Y.

Based upon technology under conditions encountered in practice, the bulletin supplements and brings the report issued in 1941 on the same subject. Data covering tests which have been under observation for five years include corrosion scores, weight loss, pitting, and chromate consumption.

### Rope Uses

Union Wire Rope Corporation has prepared a series of educational bulletins to provide a reference index for the industrial users of wire rope.

Bearing the title "Rope Dope," the nine bulletins respectively cover the following information: "Replacement of Wire Rope," as to size, tread diameter and type of construction; a continuation of the first subject with regard to Grade of Steel; "Lays of Wire Rope," with explanations of Regular and Long Lay, Right and Left Lay; "Types of Wire Rope" to aid in ordering with complete specifications; "Factors on Rope Life," which determine the service possible to obtain; "Installation of Wire Rope" and the abuses that should be avoided; "Care of Wire Rope," including instructions for home-made storage and oiling devices; "Abuses of Rope in Use," showing what happens in certain types of installations; "Figuring the Working Load," with explanation on how to figure safety factors, and actual stress on rope on given pieces of machinery.

### Arc Welding

The Lincoln Electric Company, Cleveland, has revised its book, "Lessons in Arc Welding," second edition. The book includes 61 lessons in arc welding and has over 200 photographs and illustrations to supplement the text. Published to aid those interested in welding to use the process successfully and economically, the book explains the fundamentals of this method of joining metals by the fusion principle and incorporates a wealth of new information such as how to apply the latest types of electrodes and welding techniques developed during the war years.

### Forging Service

Kropp Forge Company has issued a pictorial presentation of a modern day forging service in a 52-page book, printed in three colors, with a brief statement of the place of forgings in present day manufacture.


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# MANUFACTURERS' NOTES

## Reagan Tool Company Opens Repair Shop at Natchez

The Reagan Tool Company has opened an oil field repair shop at Natchez, Miss. The modern plant contains over 8000 square feet of floor space, is equipped with overhead cranes and heavy machine tools of latest design to facilitate repairs to pumps, boilers, drawworks, engines, and other oil field equipment.

Field service is offered by five trucks. Three of these are welding trucks which can handle jobs requiring cutting, brazing or welding. Two boiler repair trucks are provided with scalers, air compressors, welding and cutting equipment and other tools which permit thorough boiler overhaul in the field.

## J. H. Eustice Named President Of W. C. Norris Manufacturer

J. H. Eustice has been elected president of W. C. Norris Manufacturer, Inc., Tulsa, to succeed the late Don S. Bowers. He started to work for the company 35 years ago, at the age of 11.

When he finished school he became a full-time employe, and has advanced from various positions, including manager of the warehouse and shipping department, bookkeeper, sales manager and general manager.

J. H. Eustice

## Lane-Wells Presents $7500 To Oklahoma U. for Research

Lane-Wells Company has made a gift of $7500 to the University of Oklahoma Foundation to be used in research work in basic problems of interest to the oil industry. The agreement stipulates that the funds will be spent in research work on the raman spectra of petroleum hydrocarbons under the direction of Dr. J. Rud Nielsen, research professor of physics. Dr. Nielsen has worked in the field of spectroscopy and theorotical physics for many years and during the war assisted in the solution of practical problems connected with the control and production of certain ingredients of aviation gasoline and synthetic rubber. Under his direction the university's spectroscopy laboratory has made many contributions to a comprehensive catalog of the infrared spectra of pure hydrocarbons sponsored by the American Petroleum Institute and the National Bureau of Standards.

The gift was made as a result of a conference between Dr. Nielsen and W. T. Wells, chairman of the board of Lane-Wells Company. In announcing the gift, Wells wrote Dr. George L. Cross, president of the University of Oklahoma, that "he and his associates were proud of Dr. Nielsen and his past accomplishments and could think of no worthier way to spend the money than to provide him, or at least assist him, in securing modern equipment for further research."

## Officials of A. O. Smith Firm Attend Meeting in Houston

Executives and administrators of A. O. Smith Corporation held a business conference in Houston last week.

Attending were L. B. Smith, vice president; M. J. Vollmer, assistant secretary and assistant treasurer; L. M. Keating, assistant to the president; J. E. Borchert and J. F. Brown, executive assistants; W. E. Crawford, administrator, Milwaukee; D. T. Allen, administrator, Chicago; R. J. Irish, administrator, New York; R. L. Hows and W. K. Graham, administrators, Los Angeles; E. R. Barrett, administrator, Seattle; W. H. Porth, administrator, international division; and B. F. Bart, administrator, Houston.

## Organization of South Texas Instrument Group Is Announced

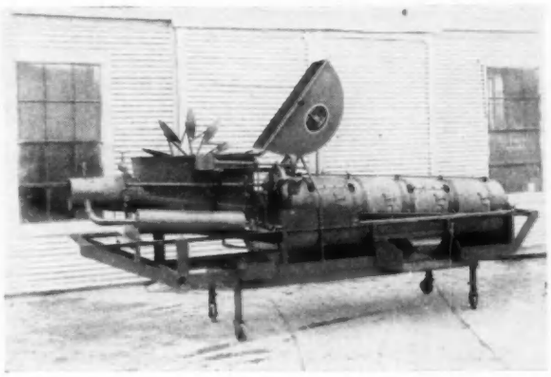
Formation of the South Texas Instrument Society, composed of men working with and interested in all types of control and measuring instruments in the Corpus Christi, Tex., area, has been announced by J. G. Pratt, president.

Meetings are held the second Tuesday of each month. Homer C. Givens, Falfurrias, with the La Gloria Corporation, is secretary of the new society.

## Firm Is Purchased

H. K. Porter Company, Pittsburgh, announces the acquisition of the Fort Pitt Spring Company, Pittsburgh, manufacturers of coil and elliptical springs. The new acquisition will be operated as the Fort Pitt Spring Division of H. K. Porter Company.

## 1—Shale Separator



Thompson Tool Company announces a new model self-motivated shale separator, known as the Thompson "Dw." Capacity has been increased to effectively handle the flow of mud from the largest mud pumps.

The improved power wheel is constructed of tubular steel, braced and welded to provide increased operating efficiency and durability. While the weight of the wheel is less, its strength has been increased, and it is said that less pressure is required to put the machine in operation. The number of water jets has been increased and relocated on the side of the drum where their function will be unhampered by wind.

The separator operates entirely from the flow of mud and does not make use of a motor or auxiliary units. It is fabricated of metal said to be rust resistant against water, mud and acids. All moving parts are mounted on ball bearings, completely enclosed and lubricated through grease fittings. Parts are also readily accessible, easily removed and replaceable at low cost.

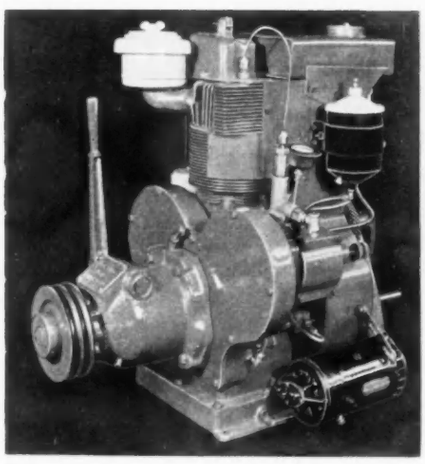
The sample machine which is standard equipment on this model separator, unless otherwise specified, affords a field-tested method of providing accurate samples of foot by foot cuttings. The sampler is mounted on the side of the separator and operates from the main power wheel.

Specifications of the separator are: length over all, 16 feet, 10 inches; height, over all, 6 feet, 4 inches; width, 3 feet, 5 inches; flow line connection above base, 2 feet, 7 inches; size of flow line connection, 12 inches; weight with sample machine attached, 2550 pounds.

*(Check item 1 on coupon for more information.)*

## 2—Air-Cooled Engine

R. H. Sheppard Company has developed an air-cooled diesel engine, which because of its size and portability is recommended for powering communication systems, auxiliary lighting plants,



pumps, and other types of power-driven equipment.

Air-cooling is accomplished by directing a fan-driven stream of fresh air over the cooling fins, and it is claimed that so effective is this method of cooling that a hand can be laid on the cylinder without discomfort while the engine is operating at full load.

The engine is 28½ inches high, 20¾ inches wide and 22½ inches long with the crank removed. It is a single cylinder, four-cycle diesel, developing 3¾ horsepower at 1800 R.P.M. It has a three-inch bore, four-inch stroke, and the piston speed is 1200 feet per minute at 1800 revolutions per minute. Piston displacement is 28 cubic inches. Standard governor regulation is 3½ percent. The engine is equipped with both hand and 12-volt electric starting.

The fuel tank holds 9/10 of a gallon, and fuel consumption is ½ pound per brake horsepower hour.

*(Check item 2 on coupon for more information.)*

## 3—Wheel, Pulley

The Scott and Ewing Company has developed a patented wheel, pulley and gear puller in which it is claimed that the pulling and gripping actions are independent of each other and which gives a maximum pulling power plus maximum safety and positive grip on the object being pulled.

The lock nut principle securely locks the hooks to whatever is being pulled so that the hooks will not slip off, and at the same time the gripping force is being equally applied on all sides. Thus the total force developed by the pulling screw is directed toward removing whatever is being pulled.

In addition to regular straight and curved hooks, many types of special hooks are available and are interchangeable for specific applications, including

expansion hooks which work just the opposite from regular hooks in that they are used in pulling from the inside.

The Klay puller is made in two and three-hook types for pulling anything from a 5⅛-inch gear up to a 40-inch wheel or hub.

*(Check item 3 on coupon for more information.)*

**Use This Convenient COUPON for Additional Information**

Check below the numbers identifying items on which you want additional information. Mail coupon to The Oil Weekly and your request will be forwarded to the manufacturer.

**THE OIL WEEKLY**
**P. O. Box 2608, Houston 1, Texas, U.S.A.**

Please have manufacturers send me, without obligation, more information on items shown in January 28 issue of The OIL WEEKLY as checked below:

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# NEW EQUIPMENT . . . LITERATURE

## 4—Electrode Holders

Tweco Products Company is introducing a new line of cooled carbon electrode holders for manual welding. Four sizes are included: 150, 200, 300, and 500-ampere models. Positive "Hol-Grip" design with ample length and ventilation are features of the holders.

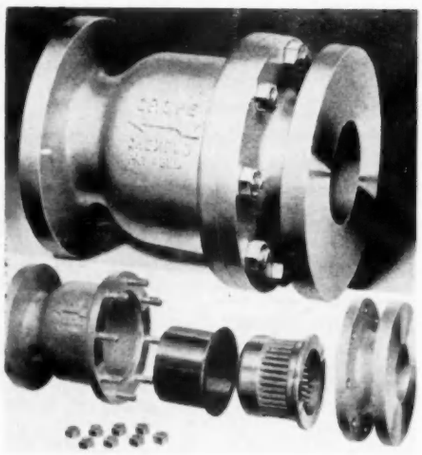
The average carbon arc welding job is done with either the 13½ ounce, 150-ampere holder or the 20-ounce, 200-ampere unit. These two units are furnished optionally with or without cables for short duration jobs. The 300 and 500-ampere models are suitable for heavy welding or cutting jobs.

Each size of holder is well balanced when equipped with proper size cables. They are cool running within their rated amperage and carbon capacity range. The cable connection is simple clamp type.

*(Check item 4 on coupon for more information.)*

## 5—Valve

Grove Regulator Company has developed a valve particularly suited for handling the most highly corrosive and erosive air, gases, or liquids. Operation is effected by a synthetic rubber tube



stretched over a slotted, cup-shaped metal core, which expands to open and contracts to close.

Since this expansible tube closes instantly on balanced flow, prior to the commencement of back flow, it is claimed that there is never any tendency to establish pressure impulses, shock or water hammer through the flow line. The flexive tube possesses a uniform and constant spring rate which avoids inertia being set up to cause operation beyond flow requirements. It likewise improves in service, according to the manufacturer, due to the fact that "flexing" adds life to the rubber. Because of its self-compensating and wear-resistant factors, the unit is especially suitable for the purpose for which it was designed.

*(Check item 5 on coupon for more information.)*

**Use the Coupon**

**For free copies of Manufacturers' Literature or more information on products described on these pages, use the convenient mailing coupon on page 93.**

## Literature

### 6—Welding Rods

Eccles & Davies Machinery Company has issued a 16-page, two-color booklet on phosphor bronze electric welding rods. It gives uses and techniques for welding copper, bronze, cast iron, steel and their alloys and contains a polarity table and directions for best welding results.

*(Check item 6 on coupon for more information.)*

### 7—Steel Products

Wheeling Corrugating Company has published a new condensed catalog of Steelcrete products which include metal lath, rib lath, channels and all types of bead; expanded metal, frame bars and accessories, and wire mesh.

*(Check item 7 on coupon for more information.)*

### 8—Pumps

Worthington Pump and Machinery Corporation has published bulletin W-414-B44, on type VTE power pumps of 2, 4, 5 and 6-inch stroke. Among applications of the pump are water flooding in oil fields, product pipe lines, and boiler feed.

*(Check item 8 on coupon for more information.)*

### 9—Asphalt Paving

The Asphalt Institute has published a text on the design of hot-mix asphalt concrete paving and how any particular job mix is set up.

The manual has four subdivisions, as follows:

Part I—Recommended Thickness Requirements for Hot-Mix Asphaltic Concrete Paving.

Part II—Specification A-2-a Hot-Mix, Hot-Laid, Asphaltic Concrete Paving. Dense-Graded Aggregate Type, Methods of Texting Mixtures, Job and Plant-Mix Formulas.

Part III—Specifications A-2-b Hot-Mix, Hot-Laid, Asphaltic Concrete Paving.

Part IV—Inspection of Hot-Mix Asphaltic Concrete Paving.

*(Check item 9 on coupon for more information.)*